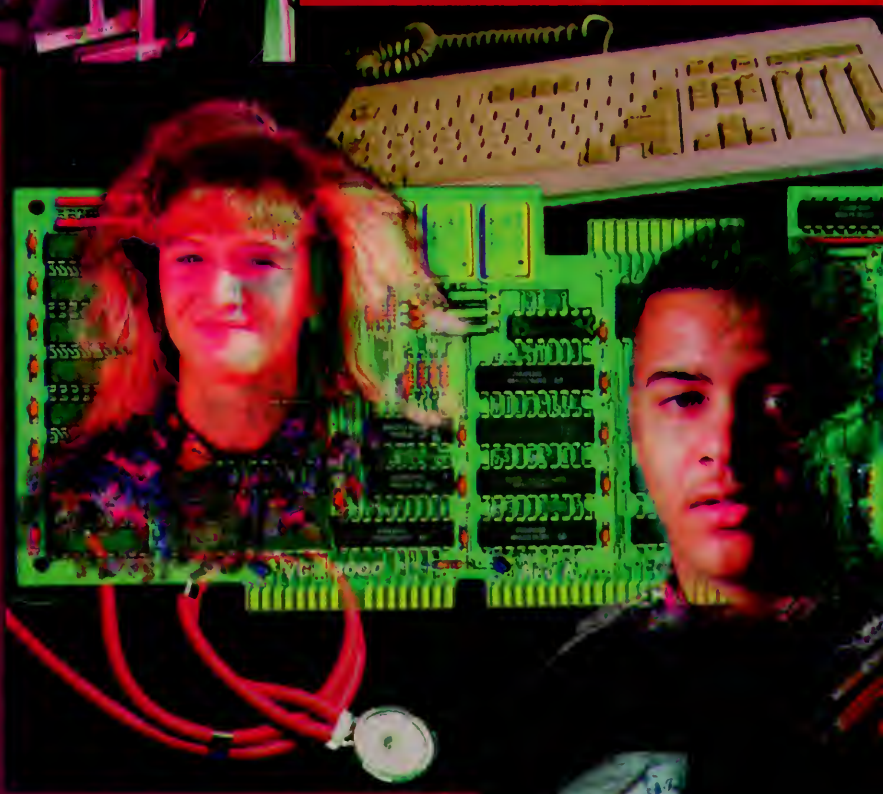
IVY TECH

Indiana Vocational Technical College



Central Indiana Region

Bulletin 1992-93

921-4800

Ivy Tech - Indianapolis is accredited by:
North Central Association of Colleges and Schools

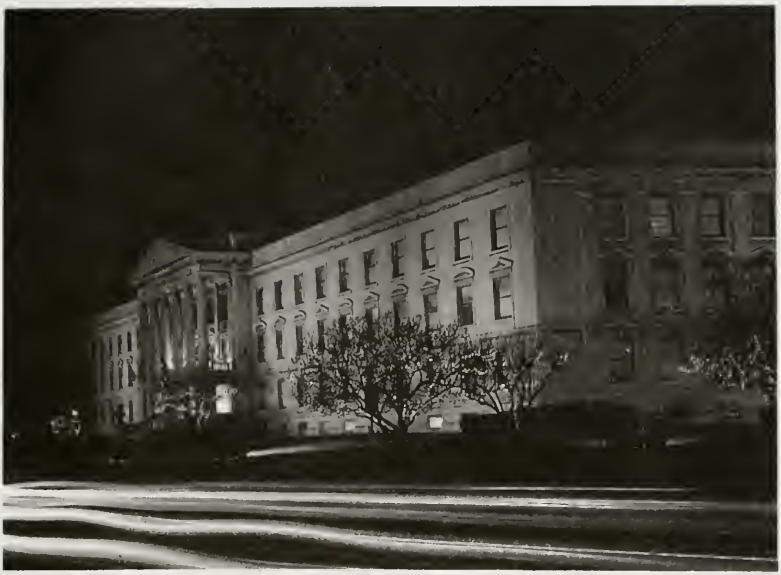
Ivy Tech - Indianapolis is professionally accredited by:
American Culinary Federation, Inc.
American Design and Drafting Association
The American Medical Association Committee on Allied Health Education and Accreditation
- American Association of Medical Assistants
- Association of Surgical Technologists, Inc.
- American Registry of Radiologic Technologists
- Joint Review Committee on Respiratory Therapy Education

National Automotive Technician Education Foundation, Inc.
National League of Nursing

Ivy Tech - Indianapolis is approved by:
Indiana Commission on Vocational and Technical Education
Indiana State Board of Nursing
Indiana State Board of Health
- Qualified Medication Aide
- Nurse Aide
- Social Service/Long Term Care

Chef de Cuisine Association of Indiana, Inc.

Editor/Technical Support/Design: Lisa Kitchen Butt




INDIANA VOCATIONAL TECHNICAL COLLEGE
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INDIANA VOCATIONAL TECHNICAL COLLEGE
1963
INDIANA VOCATIONAL
TECHNICAL COLLEGE

Ivy Tech Bulletin
1992-1993

Indiana Vocational Technical College

NONDISCRIMINATION POLICY AND EQUAL OPPORTUNITY/AFFIRMATIVE ACTION PROGRAM

Indiana Vocational Technical College seeks to develop degree credit programs, courses, and community service offerings and to provide open admission, counseling, and placement services for all persons, regardless of race, color, creed, religion, sex, national origin, physical or mental handicap, age or veteran status.

CATALOG DISCLAIMER

This catalog is intended to supply accurate information to the reader.

From time to time, certain information may be changed.

The College may revise any matter described in this catalog at any time without publishing a revised version of the catalog. Information which appears to apply to a particular student should be verified by the Registrar's Office. This publication and its provisions are not in any way a contract between the student and Indiana Vocational Technical College.

Indiana Vocational Technical College, Region 8, fully enforces and supports equal opportunity and affirmative action. The College does not discriminate on the basis of age, race, color, religion, sex, handicapping conditions or national origin, including limited English proficiency, in any employment opportunity. No person is excluded from participation, denied the benefits of, or otherwise subjected to unlawful discrimination on such basis under any educational program or student activity.

If you believe you have experienced discrimination in educational programs or activities, direct written inquiries about available procedures or written complaints for consideration of alleged discrimination to the Director of Employee Relations, Region 8, One West 26th Street, P.O. Box 1763, Indianapolis, IN 46206.

The Director of Employee Relations is available to assist employees and students in matters where perceived discrimination exists. You may reach the Director of Employee Relations at 921-4762.

November 1992
Regional Relations-08

Editor/Designer/Technical Support: Lisa Kitchen Butt

A MESSAGE FROM THE CHANCELLOR

Welcome to Indiana Vocational Technical College-Central Indiana. Thank you for choosing Ivy Tech to help you to meet your educational goals.

As you look through this Bulletin for specific information about the program or classes you are interested in, I think you will be pleasantly surprised at the wide range of courses and services available at Ivy Tech. We make every effort to meet the needs of diverse groups of students so that no matter what your interest or goal, we can try to accommodate you with appropriate classes, financial assistance, counseling, and other services.

The staff members in each area of the College are here to help you in any way they can. If you have questions or concerns about any of Ivy Tech's services, please feel free to ask.

We are happy you are here. We want your educational experience to be a profitable one.

Thank you for choosing Ivy Tech.

Meredith L. Carter

Dr. Meredith L. Carter

Chancellor

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COLLEGE PROFILE

Moving Forward

In just over a quarter of a century, Indiana Vocational Technical College, popularly known as Ivy Tech, has grown from an idea to a thriving post-secondary institution. In 1963, the Indiana General Assembly established Ivy Tech as Indiana's first statewide vocational technical college by appropriating $50,000 for its development. Following appointment of a State Board of Trustees, a president was named and the first training program was established in 1965. Later amendments to the enabling legislation authorized Ivy Tech's present regional structure of thirteen administrative centers to provide accessible technical educational opportunities to all Indiana citizens. Between 1966 and 1969 thirteen regional boards of trustees were appointed and thirteen regions chartered.

Ivy Tech is a public, statewide, open-access, community-based, technical college. The College's mission is to enable individuals to develop to their fullest potential and to support the economic development of Indiana. Ivy Tech prepares residents of Indiana with the general and technical education needed for successful careers or for continuation in further higher education. The College provides courses, degree programs, counseling and related services, technical assistance, and community service to individuals, communities, and businesses and industries across the state. Ivy Tech promotes educational mobility through partnerships with local schools and other higher education institutions.

Within the statewide Ivy Tech system, some 1,500 full- and part-time faculty members teach in more than 50 program areas offered in four instructional divisions: Business, Office and Information Systems Technologies; Visual Communications Technologies; Human Services and Health Technologies; and Applied Science and Technologies.

The College's regional offices of Business and Industry Training work closely with Indiana businesses to offer customized training and retraining in response to specific company needs. These training programs are available at Ivy Tech or in plant.

Regional History

Ivy Tech-Central Indiana at Indianapolis, one of the College's 13 regions, opened its doors in 1966 to serve residents of Indianapolis and Marion, Morgan, Hancock, Johnson, Shelby, Boone, Hendricks, and Hamilton counties. In 1966, 367 students enrolled in three technical programs; in 1991, 5,280 students enrolled in 33 areas of study. Further, state leaders in government and business are looking to Ivy Tech more than ever before to provide the skilled technicians who will attract new industry to the state.

Facilities

The Ivy Tech-Central Indiana campus is located north of downtown Indianapolis. The central campus is located at One West 26th Street, corner of Fall Creek Parkway and North Meridian Street, and is comprised of the North Meridian Center and the Technology Center. The East Washington Street Center, 1315 E. Washington Street, houses the Automotive Service Technology and Auto Body Repair program.

ENTERING THE COLLEGE

Admissions Non - Degree Objective

Ivy Tech offers courses in many special career areas. Admission as a non-degree student is easy. Simply complete a registration form, obtain an advisor's signature, and register. Please check with a counselor to see if the course you want is available to non-degree students. Call 921-4800.

Admissions—Degree Objective

For admission as a degree-seeking student to one of Ivy Tech's programs leading to an Associate Degree or Technical Certificate, the requirement is a high school diploma or GED certificate. The Admissions, Counseling, or Registrar offices can provide a request form to the student. The College must receive an official copy of high school transcript or Official Report of GED Test Results. Students must turn in reports by the end of first semester. Human Services and Health Division students may need to get their copies of transcripts or scores before starting their first semester.

Applicants are required to participate in academic assessment testing. The purpose of testing is to measure the student's achievement in basic skills areas of mathematics, reading, writing, reasoning, and communication.

Assessment testing may be waived in certain programs if the applicant submits either:

a. an official transcript from an accredited post-secondary institution indicating academic achievement consistent with Ivy Tech's admission standards;

b. adaptable standardized test scores (i.e., SAT, ACT) indicating academic achievement consistent with Ivy Tech's admissions standards.

If assessment indicates that the applicant has the basic skills needed for success in the chosen program, he/she may be allowed to begin program level coursework. If the assessment reveals skill deficiencies, the applicant will be advised to complete appropriate developmental coursework. Applicants may enroll in program courses when academic deficiencies are not prerequisites for successful completion of the program course. Students may or may not be eligible for financial aid during this period.

If the assessment indicates that the applicant is unlikely to achieve success at Ivy Tech at that time, he or she will be referred to an appropriate community resource offering the needed assistance. The applicant may reapply at a later date, following completion of skills upgrading.

The College reserves the right to guide the enrollment of students in particular programs or courses on the basis of past academic records, vocational/technical counseling, and testing.

Students seeking admission to certain health occupation programs may be requested to take part in specific pre-enrollment assessments and/or interviews to fulfill College or external agency requirements. Certain prerequisites, such as health examinations, may be required before enrolling in specific programs or courses.

Readmission

Should a course of study at Ivy Tech be interrupted during a semester, appropriate drop/add paperwork must be completed. If a student is either withdrawing from classes or simply not re-enrolling for classes, the student may request readmission at a later date. This may be accomplished by contacting the Admissions and Counseling Office. Information on eligibility for financial aid will be available to returning students, from the Financial Assistance Office.

Limited Admissions Enrollment

Sometimes the number of students admitted and enrolled in programs and/or courses is limited by College resources or facilities—including available lab equipment or the number of available health program clinical work stations. The Admissions and Counseling Office should be contacted regarding the access status of different programs.

Admission Procedures and Support Documents

Degree Objective

1. The College requires all students to complete the student admission data form, which establishes records in the Admissions Office.

2a. Proof of high school graduation or GED completion is normally required for admission into a program leading to a certificate or a degree. The high school graduate or individual who has the GED must request the secondary school or testing center to send an official copy of the transcript or GED certification to the Office of the Registrar. The high school transcript or GED certification scores must be on file at the Registrar's Office by no later than the end of the first semester of attendance.

2b. Students whose high school transcripts are not in English must have their high school transcripts translated into English and verified by an appropriate outside agency. All international students must have their transcripts evaluated and verified by an

appropriate outside agency. Please contact the Admissions Office for an international packet.

3. The College has counselors available to assist students in selecting a course of study at Ivy Tech.

4. The College requires that program-declared students either provide acceptable standardized test scores or participate in the College academic diagnostic testing program.

5. Should a student wish to transfer credits to Ivy Tech from another college, the student must have an official copy of the grade transcript or other document forwarded from that institution to Ivy Tech before enrolling for courses. This must be done no later than the end the first semester of enrollment or re-enrollment.

6. The College requires a health examination for certain programs.

Transferring to the College

The College encourages students who have previously attended other recognized colleges and universities to talk to Ivy Tech's Admissions and Counseling Office. Students who have had such education and feel they may be able to test out of certain courses may contact their program chairperson. Students are responsible for providing course descriptions and/or copies of the college catalog(s) if further documentation may be needed to facilitate the transfer credit review. Foreign students must have all documents translated into English. The College will be glad to assist individuals with the evaluation of their prior educational experiences. Ivy Tech Central Indiana does not accept for transfer credit taken at a foreign institution. However, through an Admissions Counselor, students with college work are encouraged to talk with appropriate program chairpersons to see if testing out of courses is possible, based on previous college or work experience.

The College reserves the right to refuse admission or to accept conditionally those students who have been dismissed for disciplinary reasons from other colleges or universities.

Transferring to Other Colleges

It is the right and responsibility of the receiving institution to decide whether to accept credits from another institution. The Associate of Applied Science degree (A.A.S.) and the certificate programs offered by Ivy Tech are intended to prepare students with the necessary knowledge and skills to enter or advance in the workplace. In general, the A.A.S. and certificate programs are not designed to transfer to other institutions. However, some receiving institutions permit a student to receive credit for a course through an examination upon successful completion of an A.A.S. or certificate program. Ivy Tech offers Associate of Science (A.S.) degree programs at certain sites which, through agreements with specific institutions, are designed to transfer. Students interested in transfer programs and credit by examination should check with the Admissions and Counseling Office.

International Students

International students must meet the College admission standards and certain other requirements. Students should request an international packet from the Admissions and Counseling Office which has all the details: Ivy Tech, Admission Office, P.O. Box 1763, One West 26th Street, Indianapolis, Indiana 46206. ATT: International Counselor

Note: International students should apply for admission to Ivy Tech at least ninety (90) days prior to the beginning of the term they wish to attend.

An international student must also provide proof of adequate financial support for College fees and living expenses for each year while attending the College. Please refer to the international packet.

Special Needs

College programs and facilities are designed to be accessible to handicapped students. Ivy Tech-Central Indiana has designated parking and special restroom facilities for the physically challenged. Support Services will also aid handicapped students with career planning, financial aid application, personal counseling, and placement. The College staff works with The Department of Vocational Rehabilitation and other service agencies to assist physically and psychologically impaired students through available local community resources.

Students with handicaps are urged to contact the Special Needs Office at 921-4983 for help with their special challenges as students at Ivy Tech.

INSTRUCTIONAL SERVICES

In keeping with its mission and goals, the College serves people 16 years and older in educational programs consistent with projected job requirements and personal interests. The purposes of Ivy Tech's technology programs are to develop competent workers for initial employment, to upgrade the skills of those already employed, and to provide a foundation of thinking and analytical skills to meet the requirements of society's expanding knowledge base. Ivy Tech programs provide skills training and instruction in recent technological advancements and developments.

Ivy Tech programs are designed to meet the needs of the student population, accommodating those who wish to enroll in a few classes as well as those who prefer a full program. Credit programs normally culminate in the Associate of Science degree, the Associate of Applied Science degree or the Technical Certificate. The College's 50 degree programs are offered in these four divisions:

Business, Office and Information Systems Technologies;

Visual Communications Technologies;

Human Services and Health Technologies;

Applied Science and Technologies.

Short-term training is available in selected credit courses, in sequences of credit courses, and in custom-designed courses for local businesses and industries. Also available are contract training programs, and non-credit institutional activities, such as seminars, workshops, and conferences.

In addition to program and custom-designed courses, Ivy Tech offers basic skills instruction for students who require academic support and/or study skills to assist them in successful completion of a regular program of study. Additionally, enrollment in certain basic skills courses is designed to prepare the student for the GED examination.

Associate in Science (AS) Degree Programs

Associate in Science degree programs prepare students for careers and also enable students who have an interest and ability to transfer Ivy Tech credits to cooperating four-year institutions. The degree requires the satisfactory completion of a program of study representing a planned progression of

learning experiences. These programs emphasize cognitive skills intended as pre-baccalaureate study and provide courses equivalent to those prescribed in the lower division of the receiving four-year college or university.

Currently the College awards the Associate of Science degree in Early Childhood Development, Nursing, Computer Information Systems, Commercial Art Technology, Accounting, Marketing, Administrative Office Technology, and Architectural Drafting at selected Ivy Tech sites.

Students should contact Regional Instructional Services to receive information about additional transfer-oriented programs being developed at other Ivy Tech locations.

Associate of Applied Science (AAS) Degree Programs

Associate of Applied Science degree programs prepare students for career mobility within occupational clusters at the technician or technology level. The programs offer education in recognized specialities with emphasis on analysis, synthesis, and evaluation. The program content, which is approximately 75 percent technical and 25 percent general education, provides both depth and breadth in conceptual and manipulative skills. The general education courses, offered in the areas of communications, humanities, mathematics, life and physical sciences, and social sciences, equip students with the life skills they need to be fully functioning, contributing members of society.

Technical Certificate (TC) Programs

The Technical Certificate programs provide training in conceptual and manipulative skills for specific occupations. Each program contains a sequence of required courses in a recognized specialty within one of the technologies taught at the College. The program content is designed to develop competency in the comprehension of general and technical skills in that specialty.

Career Development Certificates (CDC)

Ivy Tech provides short-term programs for individuals who desire to develop competencies in a specific area. These programs are less than 32 semester credits in length. Instruction is delivered through methods that include regular courses and specifically designed courses. Many of these courses are based on a sequence of learning experiences determined by a certifying state or national association or organization. Completion of certain short-term programs qualifies students to sit for certification examinations. The number and types of short-term programs vary.

Business and Industry Training Programs

Ivy Tech offers specialized training services for business and industry.

Directors of Business and Industry Training are responsible for the development of custom-designed programs and services that meet the training needs of local businesses. Through its offices statewide, the College provides training services in which Ivy Tech consults, designs, produces, conducts, and evaluates courses specifically prepared to satisfy employer needs. The Directors work with business and industry, trade unions, and public and community economic development groups to assess training needs and to deliver training when and where it is needed, often in-plant.

The services provided by the Business and Industry Training programs help ensure that the skills of employees of Indiana firms are current with changing technology. Instruction that best meets a company's specific needs is delivered through methods that include regular courses, short term courses, seminars, conferences and labs.

As the third largest of Indiana's public institutions of higher education, with more than 25 years of experience in vocational and technical instruction, Ivy Tech has been and continues to be a leader in promoting Indiana's economic development by providing comprehensive training services to Indiana businesses and industries.

Off-Campus Classes

In response to the needs of Region 8 residents, Ivy Tech provides credit courses at a number of off-campus sites. Currently, more than 75 regular credit courses are being offered at 11 off-campus locations. These locations are Ben Davis, Lebanon, Noblesville, Greenfield, Walker Career Center (Warren Central), Shelbyville, Greenwood, Martinsville, Mooresville, Westfield, and Fort Benjamin Harrison.

Basic Skills Advancement Program Services

Ivy Tech offers a Basic Skills Advancement Program to help ensure the success of students in the completion of their educational goals. Ivy Tech is concerned about the success of its students, and this program is designed to ensure that every student has the opportunity to be successful.

Services provided include diagnostic assessment and evaluation, career counseling and financial aid information. Ivy Tech students preparing for the GED examination may take a practice test and receive academic counseling. The need for these services may be identified at the time of admission; however, a student may utilize any or all services upon encountering academic difficultly during a course of study. Professional basic skills advancement instructors and laboratory technicians provide supplemental instruction in the areas of math, communications, sciences, human relations, GED preparation and study skills.

Special Needs Services provide supportive services to students with handicaps to aid in their achieving academic and employment goals. The

services include interpreters for the deaf, adaptations for the hard of hearing, taped books, tutoring services, counseling and liaison with other agencies.

For further information about the College's Basic Skills Advancement Program, students should contact either the Admissions and Counseling Office or the General Education and Support Services Division.

Course Numbering System

Courses are identified by a three-letter prefix that designates the program area, followed by three numbers for course identification. Courses numbered in the 100 series are first year and 200 series numbers indicate second year courses. Courses numbered 001 to 099 indicate Basic Skills Advancement Courses.

Business Division

ACC .... Accounting Technology

SEC ..... Administrative Office Technology

CIS ..... Computer Information Systems Technology

CUL .... Culinary Arts Technology

DSM .... Distribution Management

HMM .. Hotel/Restaurant Management

IST ..... Industrial Supervision Technology

MKT ... Marketing Technology

LEG .... Paralegal Technology

BUS .... Small Business Operations

Human Services and Health Technologies Division

AS ..... Associate Degree Nursing

HCA .... Health Care Administration

CHD .... Child Development Technology

HST ..... Human Services Technology

MEA ... Medical Assistant

RAD ....Radiologic Technology

RES .....Respiratory Care Technology

PNU ....Practical Nursing

SUR ....Surgical Technology

Applied Science and Technologies Division

AFS .....Applied Fire Science Technology

AMT ...Automated Manufacturing Technology

ABR ....Automotive Body Repair Technology

AST .....Automotive Service Technology

DCT ....Drafting/CAD Technology

ELT .....Electronics Technology

HEA ....Heating/Air Conditioning/Refrigeration Technology

ILT .....Industrial Laboratory Technology

IMT .....Industrial Maintenance Technology

MTT ....Machine Tool Technology

ENV ....Pollution Treatment Technology

WLD ...Welding Technology

General Education and Support Services Division

BSA ....Basic Skills Advancement

ENG ....Communications

HUM ...Humanities

MAT ...Mathematics

SCI .....Life and Physical Sciences

SOC ....Social Sciences

STUDENT SERVICES INFORMATION

Test-out Procedures

Policies regarding testing out of courses vary from program to program. A student who wishes to test-out of a course should contact the program advisor. A $5.00- per -credit -hour fee will be charged for the tests. The general guidelines for testout are as follows:

1. Test-out examinations should be taken before the student registers for the course for which the test-out is attempted.

2. Test-out examinations are normally completed at one sitting (unless the test is offered in two parts, i.e., lab and written exams).

3. Test-out credits are not included in credit computations for financial aid programs or student grade point averages.

Registering for Courses

The registration process includes financial aid and program counseling, selection of courses, and payment of fees. Newly admitted students will be notified of when to register for their first semester classes.

Specified days are set aside for registration before the beginning of each semester. Students should seek assistance in course selection from faculty advisors or counselors through the Admissions and Counseling Office before registering for classes.

The Admissions and Counseling Office can supply information concerning registration. NOTE: STUDENTS ARE REGISTERED WHEN FEES HAVE BEEN PAID.

Open/Late Registration

Please see class schedule for course reservation days and registration times. Registration on or after the first day of classes each term is considered late. Students may register after the first week of classes with the permission of the instructor; however, a late registration fee is assessed beginning the first day of classes. For further information, students are asked to contact the Admissions and Counseling Office.

Drop - and- Add

Courses may be dropped or added during the first two weeks of the regular semester. Students may be eligible for a full or partial refund of the assessed fees for courses dropped during the first four weeks of the semester. Students changing, adding or **withdrawing from a class** must notify the College in **writing using the drop/add form. This form must be**

presented to the Registrar's Office. After the first week of the semester, students will need to receive the permission of the instructor to add a course.

Student Withdrawal

From the beginning of the second week to the end of the week marking the completion of 75 percent of the course, a student may withdraw from a course by filing a completed withdrawal form at the Registrar's Office and discontinuing class attendance. (Students may be eligible for a full or partial refund of the assessed fees—see below.) Records will then indicate status of "W" in place of a grade for that course. A student who discontinues class attendance after the last day to withdraw with a "W" will receive a grade commensurate with the course requirements.

College Fees

The College seeks to provide quality education at the lowest possible cost. General fees are based on the number of credit hours for which the student has registered. Additional costs include Divisional fees and special fees pertaining to particular courses or College activities. Out- of- state students pay an additional fee per credit hour.

Additional Expenses

The following additional expenses may apply, depending upon the program of study:

BOOKS: All students are expected to purchase the textbooks for their respective programs. The cost of books will vary according to classes taken.

TOOLS: The College furnishes major equipment items for instruction; however, in many programs or courses students must furnish additional hand tools and equipment.

UNIFORMS AND OTHER SPECIAL EQUIPMENT: Several programs require students to furnish uniforms and special safety equipment.

TRAVEL: Transportation costs to and from the College vary according to the distance and the type of transportation used.

For a current schedule of fees and further information, contact the Admissions and Counseling Office.

Payment of Fees

All enrolled students must pay all applicable fees. A student is officially registered and allowed to attend classes when all fees have been paid.

Refund Policy

Students choosing to drop or withdraw from a course or courses must notify the College in writing using the drop-and - add or withdrawal form. The fee refund for voluntary withdrawal from a class, when applicable, will be processed only after the student files a College drop-and-add form or withdrawal form with the Registrar's Office.

The College will refund students' assessed fees, with the exception of the late registration and deferment fee, on a schedule computed as follows for a regular semester:

From registration to end of first week of semester:	100% refund
To end of second week of semester:	75% refund
To end of third week of semester:	50% refund
To end of fourth week of semester:	25% refund
After fourth week of semester:	No refund.

The effective date for calculating the fee refund is the date of written notification of the drop-and-add form.

Certain other fees may be refundable. Further details are available from the Bursar's Office.

All refunds will be issued by check and mailed to the address shown on the student registration form.

Cancellation of credit courses by the College will result in total refund of fees collected for those courses.

FINANCIAL ASSISTANCE

Indiana Vocational Technical College offers various types of financial assistance to students who need aid to continue their education. Students must be accepted for admission to the College in an eligible program. Sources of financial aid may be offered to eligible full - time and part - time students. The Financial Assistance Office at 921-4777 will help with information concerning student aid programs.

Some aid programs are administered by the College Financial Assistance Office under the policies and guidelines established by the state and federal governments; others are administered directly by a state or federal agency or outside organization. A few programs may be available on a regional basis only. Eligibility for most financial assistance at Ivy Tech is based upon the student's demonstrated financial need. To qualify for any form of financial aid the student must complete either the Financial Aid Form (FAF) or the **Single File Form** each year and meet additional eligibility requirements (i.e., citizenship or permanent resident status, draft compliance, reasonable academic progress). Students who have attended any schools after high school must have a financial aid transcript from those schools forwarded to the Ivy Tech Financial Assistance Office before any financial aid can be awarded. Additional information concerning federal, state and college financial assistance is available in the financial aid brochure.

Grants and Scholarships

The following forms of financial assistance are available to Ivy Tech students.

Pell Grants

Pell Grants represent the largest federal student assistance program for Ivy Tech students. Since the grant is based on the student's need, enrollment status, and cost of education at Ivy Tech, the amount may vary from semester to semester. To apply the student should file the (FAF) College Scholarship Service Financial Aid Form or the Application for Federal Student Aid (AFSA) available at the Ivy Tech Financial Assistance Office. The Pell Grant applicant will receive a copy of the Student Aid Report in the mail. The Student Aid Report must be signed and presented to the Financial Assistance Office before or at the time the student enrolls in order to determine the amount of the grant.

Supplemental Educational Opportunity Grant (SEOG)

SEOG is a federally funded student aid program which enables colleges to make grants to financially needy students to assist in the

payment of educational costs. Applicants must file the Financial Aid Form (FAF) or the Single File Form to establish eligibility. Since the amount of SEOG funds allocated to the College by the federal government is limited, awards vary each year.

Hoosier Scholar Program

The State Student Assistance Commission of Indiana may award from one to three scholarships per high school, based on the size of the graduating class. Candidates are nominated by their high schools. The Hoosier Scholarship is a one-time, nonrenewable merit award in the amount of $500 for one academic year.

Higher Education Award Program (HEA)

Residents of Indiana may apply for Higher Education Awards. Applicants must file the Financial Aid Form prior to March 1 preceding their enrollment for the following fall semester. Awards are based on demonstrated financial need. Recipients of HEA awards must be enrolled full-time each semester in order to be eligible to receive the grant.

Lilly Endowment Educational Awards (LEEA)

Lilly Endowment Educational Awards are intended to help meet remaining financial need after federal and state dollars are applied. Applicants must file the Financial Aid Form prior to March 1 preceeding the enrollment for the following fall semester. Recipients of Lilly awards must be enrolled full-time each semester in order to be eligible to receive the grant.

Ivy Tech and Foundation Scholarships

Many Ivy Tech regions award scholarships provided by the Ivy Tech Foundation and local civic and service organizations. Students should contact the Financial Assistance Office for details concerning availability of these scholarships.

Ivy Tech Grants

Ivy Tech provides an extensive grants-in-aid program. Fee remissions are available under five separate programs:

1. Ivy Tech Grant awarded on the basis of need.
2. Ivy Tech Scholarship awarded on the basis of merit.
3. Ivy Tech part-time new students' grants awarded to first-time students enrolling in 1-5 credit hours.
4. Statutory Fee Remissions provided to certain groups of students such as children of Disabled Veterans, orphans of deceased police and firefighters as determined by the Indiana Legislature.

Federal College-Work Study Program

The federally funded College-Work-Study Program provides part-time employment to students who need financial assistance. Job assignments are within the College. The student is required to file the FAF or AFSA Form. The starting hourly rate will be at least the federal minimum wage level. Employment may consist of, but is not limited to, secretarial and clerical office work, maintenance or custodial work, duties in the Learning Resource Center (LRC), or work as lab assistants. Where possible, students are offered work-study assignments in areas related to their career objectives.

Stafford Loans

Students who attend classes on at least a half-time basis may borrow up to $2,625 per year from private lenders, such as commercial banks, savings and loan associations, or credit unions. The Federal government determines the interest rate on a Stafford Loan. Currently the rate is 8 percent. The federal government pays the interest on the loan to the lender during the time the student is in school, provided the borrower has met certain criteria set by the federal government for the interest subsidy.

Students begin repayment six months after graduation or reduction of class load to fewer than six credit hours. Applications for Stafford Loans may be obtained from the student's hometown bank, savings and loan association, credit union, or other financial institution. The regional Financial Aid Office must complete a portion of the loan application and approve it before it can be forwarded to the lender for processing.

Parent Loan for Undergraduate Students PLUS/SLS

The PLUS/SLS program is intended to assist students and parents in financing education when a student is not eligible for other types of financial assistance. An independent undergraduate student is eligible to borrow a maximum of $4,000 per year. Parents of dependent undergraduate students may be eligible to borrow a maximum of $4,000 per year. Repayment begins within thirty to sixty days after the loan is made. The federal government does not pay an interest subsidy on this loan.

Veterans' Benefits

Students who served in the armed forces may be eligible for veterans' benefits. The Veterans Administration, and, in many instances, the Department of Defense, determine eligibility for veterans. The amount of monthly educational allowance will depend on (1) enrollment status and (2) individual entitlement of each veteran.

The veteran should meet with the Veteran Affairs Coordinator in the Financial Assistance Office at the earliest possible date. The College is responsible for reporting the attendance of veterans and certifying that they are making reasonable progress toward an education objective.

Selected Reserve Educational Assistance Program

Members of the U.S. Army Reserve, Naval Reserve, Air Force Reserve, Marine Corps Reserve, Army National Guard or Air National Guard may be eligible for benefits under Chapter 106 of the VA Regulations. Eligible students should contact the VA Coordinator at 921-4700 for additional information and applications.

Child of Disabled Veteran (CDV) Benefits

Children of deceased or disabled veterans may be eligible for fee remission benefits. Students should contact the Ivy Tech VA Coordinator for further information and assistance in applying for benefits. Indiana residents who are the children of deceased or disabled veterans, or of veterans awarded the Purple Heart may be eligible for a fee waiver at Ivy Tech if the parent's death, disability, or Purple Heart award occurred as a result of military service during wartime.

Other Sources of Financial Assistance

Police and Fire Fighters' Orphans Benefits

Children of deceased, regularly paid, law enforcement officers and fire fighters are eligible for a fee waiver if the parent's death occurred in the line of duty. The fee waiver is granted only to full-time students under the age of 23. Certification from the appropriate agency must be presented to the College in order to obtain the fee waiver.

Vocational Rehabilitation

Students with disabilities that may be considered handicaps to employment may qualify for benefits through the Indiana Rehabilitation Services Board. The local office of the Division of Vocational Rehabilitation (DVR) establishes the conditions of eligibility and awards assistance, based on individual need. The DVR expects students to apply for the Pell Grant and other forms of financial aid through the school. However, if these resources are not sufficient to meet their needs, the DVR may provide additional funding. Further information is available from the local DVR counselor.

funding. Further information is available from the local DVR counselor.

Job Training Partnership Act (JTPA)

Students from economically disadvantaged backgrounds may be able to obtain assistance in acquiring vocational training or in upgrading occupational skills through the Job Training Partnership Act as implemented in October 1983. For further information, the student should contact the local Private Industry Council (PIC) Office.

Trade Readjustment (TRA)

The Trade Readjustment Act provides full tuition and fees, books, and supplies to eligible students. Students should check with their local Indiana Employment Security Division to determine eligibility.

Employer Funded Education

Many employers are willing to fund courses taken at Ivy Tech in full or in part when the training offered relates to the employee's job responsibilities. Interested students should contact their employers to determine if such an arrangement can be made.

Industry-Union Training Funds

Many unions have training funds available for members. Interested students should contact their union regarding availability of training funds for use at Ivy Tech.

Application Procedures for Financial Assistance

Application forms are available in the Financial Assistance Office. Because application procedures, deadlines, eligibility regulations, and refund policies vary with different types of student aid programs, interested students are encouraged to contact the Financial Assistance Office at their earliest opportunity. Students should allow from six to eight weeks processing time for most financial aid programs although students are encouraged to apply for assistance at any time. The fall semester marks the beginning of the financial aid award year.

Appeals - Financial Assistance

The following steps are recommended to the student whose financial assistance has been suspended and who wishes to appeal the suspension:

1. Schedule a personal conference with the regional Financial Assistance Manager to discuss and resolve the issue.

2. If the situation is not resolved, the student may appeal with the Financial Assistance Appeals Committee. The situation will be reviewed and a decision made.

STUDENT RECORDS

Ivy Tech maintains an educational record for each student who is, or has been, enrolled at Ivy Tech. In accordance with the Family Educational Rights and Privacy Act of 1974, as amended, the following student rights are covered by the Act and afforded to all students at Ivy Tech:

1. The right to inspect and review information contained in the student's educational records.

2. The right to challenge the contents of their educational records.

3. The right to a hearing if the outcome of the challenge is unsatisfactory.

4. The right to submit an explanatory statement for inclusion in the educational record if the outcome of the hearing is unsatisfactory.

5. The right to prevent disclosure, with certain exceptions, of personally identifiable information.

6. The right to secure a copy of the institutional policy.

7. The right to file complaints with the Department of Education concerning alleged failures by Ivy Tech to comply with the provisions of the Act.

   Each of these rights, with any limitations or exceptions, is explained in the institutional policy statement, a copy of which may be obtained in the Office of Admissions.

At the discretion of College officials, Directory Information may be provided in accordance with the provisions of the Act without the written consent of the student unless the student requests, in writing, that such information not be disclosed (see below). The items listed below are designated as Directory Information and may be released for any reason at the discretion of Ivy Tech unless a request for nondisclosure is on file.

- Name, address, telephone number, dates of attendance.
- Previous institution(s) attended, major field of study, awards, honors, degree conferred.
- Past and present participation in officially recognized sports and activities, physical factors of athletes (height and weight), date and place of birth.

Students may request the withholding of Directory Information by notifying the Registrar's Office in writing, specifying the areas to be withheld, within ten (10) calendar days from the first scheduled day of the term. Ivy Tech will honor the request for one term only; therefore, the student must file the request on a term-by-term basis. The student should carefully consider the consequences of any decision to withhold any category of Directory Information. Regardless of the effect upon the student, Ivy Tech assumes no liability for honoring a student's request that such information be withheld. Failure on the part of a student to request the withholding of specific categories of Directory Information indicates the student's approval of disclosure.

In addition, student records are held in security by the College. Transcripts on file with the College from high schools and other institutions of higher education cannot be released by Ivy Tech. A student needing a transcript from high school or another college should request it directly from that institution.

The Registrar's Office will assist students wishing to see and review their academic records and student files. Any questions concerning the student's rights and responsibilities under the Family Educational Rights and Privacy Act should be referred to the Registrar's Office.

Dependency Provision

Ivy Tech reserves the right, as allowed under the Federal Educational Rights and Privacy Act of 1974, to disclose educational records or components thereof, without written consent to parents of dependent students as defined according to the Internal Revenue Code of 1954 - Section 154 (as amended).

However, all Ivy Tech students will be assumed to be "independent." A certified copy of the parents' most recent Federal Income Tax Form establishing the student's dependency status shall be required before any educational records or components thereof will be released to the parent of any student. The student will be required to sign a Release of Information form.

Academic Grading

The academic grading system has both grades and status codes. Grades reflect the quality of performance and level of competency achieved by students who complete a course. Formal grades will be assigned both in the middle of fall and spring semesters (at the discretion of the technical institute or major instructional center) and at the end of each enrollment period. Instructors determine and assign grades and status based on objective appraisal and evaluation of students' performances. Semester grade reports are sent to each student. The semester grade report is not sent to students who still owe fees.

In all courses, the quality of the student's work is important in determining the grade given. For some courses, quantity of work, speed of work, or both, are considered in determining the grade. Class participation may also be considered by instructors in awarding grades.

In certain instances, a status code will appear on the student's record in place of a grade. Status represents a condition to which no letter grade can be assigned.

Grades

The quality of student performance or competency level, as determined by the instructor at the completion of a course, is indicated by a letter grade of A, B, C, D, or F. Each designation has a numerical value per credit hour, referred to as Quality Points/Per Credit. The meaning and quality point value per credit hour of each letter grade are shown in the table below:

Grade Registration	Description	Quality Points
A	Excellent	4
B	Good	3
C	Average	2
D	Minimum Passing	1
F	Failure	0

While Basic Skills Advancement courses are assigned these grade designation, no quality points or quality hours are generated.

Status Codes

Status codes describe the state or condition of a course appearing on the student's record that has not received a grade. Status code indications carry no grade points. The types of status codes and the symbols used to indicate them are shown below:

Grade Registration	Description	Quality Points
I	Incomplete	0
AU+	Audit	0
S	Satisfactory	0
U	Unsatisfactory	0
V	Verified Competency	0
NW	No-Show Withdrawal	0
W	Withdrawal	0

\+ Must be declared at time of registration and cannot be used to complete financial aid eligibility.

+These non-grades are used for the following reasons:

I- Incomplete

"I" designations are received by students who have actively pursued a course and are doing passing work at the end of the course, but who have not completed the final examination and/or other specific course assignments. To remove an "I" designation, a student must meet with the instructor to make arrangements to complete the course work. The instructor must submit the grade within thirty (30) calendar days after the end of the term in which the student received the "I" designation. If an "I" status code is not converted within the aforementioned time, an "F" will be assigned. Students who have an "I" status on their record may not register in that specific course. However, if the "I" is changed to an "F', the student may then register only once for that course in order to earn a passing grade.

AU-Audit

Audit (AU) status indicates enrollment in a course for no grade or credit. The fees for audited courses are the same as those for courses taken for credit. Audit status must be declared no later than the end of the first week of classes with approval of the Instructor or Program Chairperson.

NW-No-Show Withdrawal

"NW" will be used for "No-Show" Withdrawals.

The instructor shall authorize the Registrar to withdraw a student from any course for which the student did not report to the class for the first two weeks of the term and failed to notify the instructor of intention to attend. This administrative action will be reflected on the official class list. No refund will be processed. A petition for a refund, with documentation for extenuating circumstances, may be filed at the Bursar's Office. Students can petition to be reinstated by receiving the approval of the instructor and completing the drop/ add process.

W-Withdrawal

A "W" status code will be used for student and academic withdrawals. When students find it necessary to withdraw from a course(s), they must give formal notification to the Registrar at the College and complete appropriate forms. Student Withdrawal (W) is a terminal status, referring to voluntary student withdrawal by a student beginning at the start of the third week of the course up to the end of the week marking the completion of 75 percent of the course. To be considered officially withdrawn from a course, the student must file a withdrawal form at the Registrar's Office.

After 75 percent of the term has elapsed, a student may withdraw (with the same result as indicated above) only if documented extenuating circumstances are submitted to, and approved by, the Chief Administrative

Officer or his/her designee. The "W" status code designation will be entered on the student's academic records.

Instructors may also recommend that a student receive a "W" status code for student nonattendance in class or student disciplinary reasons, with final approval from the Chief Administrative Officer or his/her designee.

S-Satisfactory

The "S" indicates satisfactory completion of course work in situations where a status of either satisfactory or unsatisfactory (pass/fail) has been arranged by prior agreement.

U-Unsatisfactory

The "U" indicates unsatisfactory completion of course work in situations where a status of either satisfactory or unsatisfactory (pass/fail) has been arranged by prior agreement by the Chief Administrative Officer or his/ her designee. Requests for this type of grading—"U"— can only be made for non-program related courses and must be declared at time of registration. The "U" differs from an "F" in that quality points are not computed.

V-Verified Competency

The "V" indicates satisfactory completion of course work in situations such as test-out credit for experience or training, College Level Examination Program (CLEP) and so forth. Credit gained through this method may be used to satisfy degree requirements. This status is approved by the Chief Academic Officer upon recommendation of a faculty advisor, following completion of necessary verification and documentation of competency.

Students who wish to test out of a class should contact the program advisor before registering for the class. A fee may be charged for the tests.

The general guidelines for test-out are as follows:

1. Test-out examinations should be taken before registration for the class for which the test-out is attempted.

2. Test-out examinations should be taken and completed at one sitting unless the test is offered in two parts, i.e., lab and written exams.

3. Test-out examinations for specific courses are normally attempted only once.

4. Test-out credits are not included in credit computations for financial aid programs or student grade point average.

5. Courses that have been completed cannot be tested out of at a later date. Those courses must be retaken for academic credit.

Transfer Credit

Students can receive credit for courses transferred to Ivy Tech. Transfer credit is assigned following an evaluation of equivalence/relevance and is authorized providing the credits were earned with grades of A, B, or C, from a regionally accredited institution, and are not over ten (10) years old (unless the person has a degree). These credits will be included in earned hours and will appear at the beginning of the student's transcript. Although counted toward graduation, these credits are not used to calculate cumulative GPA. Final authority for Transfer Credit is with the Chief Academic Officer, upon recommendation of the Department/Program head or Registrar.

It is the responsibility of all students having enrolled in twelve (12) or more attempted quality hours to have any earned credits from other colleges submitted for evaluation as transfer credit to the College's Registrar. Courses to be evaluated are to be submitted by midpoint of the first semester of enrollment or re-enrollment. Students are responsible for providing pertinent course descriptions and/or copies of the College catalog if further documentation is needed to facilitate the transfer credit review. This information will be entered on the students' records by the end of the semester the courses were submitted for evaluation.

Transfer students will be considered to be making Satisfactory Progress at the time of their transfer to the College.

Credit Hours

Credit is described in semester hours (the number of credits taken per semester). The number of credits is determined by the demands of the course, course work and by the number of contact hours—the hours actually spent in the classroom or laboratory.

Credit Hours/Load

A credit hour represents at least one hour of lecture, three hours of laboratory or three hours of clinical instruction per week for the semester. A three credit hour lecture course, for example, meets 48 hours during the semester (3 X 16). An average full-time class load per semester in most Ivy Tech programs consists of 12-15 credit hours. To take a class load more than 17 credit hours, a student must have the approval the Chief Academic Officer or his/her designee.

Enrollment Status

Enrollment status is determined by registered total semester credits:

Full-time student:	12 or more credits per semester
3/4 time:	9-11 credits per semester

1/2 time: 6-8 credits per semester

Less than 1/2 time: 1-5 credits per semester

A first-year student, by definition, is one who has completed fewer than 30 semester credit hours; a second-year student is one who has completed 30 or more semester credit hours.

Quality Points

Quality points are numerical values indicating the quality of student performance in credit courses: A=4; B=3; C=2; D=l; F=0. The quality points earned for a course equal the quality point value times the number of credits. A student who earns an A in a 4-credit course earns 16 quality points: the quality point value (4) X the number of credits (4) = total quality points (16).

Grade Point Averages

Beginning Fall, 1990, GPA is calculated by dividing quality points by quality hours. Quality Hours include all nonbasic skills advancement courses graded A-F.

(Earned Hours include all credits that can be applied toward a degree objective. Attempted Hours include all formally enrolled hours.)

Before Fall, 1985, Ivy Tech -Central Indiana included courses that related and contributed to the approved educational objective, and included basic skills advancement course in the GPA. Beginning Fall, 1985, all courses except skills advancement courses are included in the GPA without regard to program or Regional Campus. GPA will reflect only the highest grade achieved in any course that the student may have taken more than once.

Under extenuating circumstances, a student may petition the Academic Status Committee to exclude up to fifteen (15) semester hours of course work from the cumulative GPA calculation. Course statistics that are excluded from the cumulative GPA calculation as a result of a petition will not be counted as earned and cannot be used to satisfy requirement for degree declared students. Petition forms may be obtained from the Registrar's Office.

Improving a Grade

Students, with the approval of faculty advisors, may attempt to improve D or F grades by repeating courses (allowable once in most programs). Financial Aid recipients, however, should review their situations carefully since payment for repeated courses can be disallowed. Permanent student records contain complete files on all activity. The student's grade point

average will reflect the highest grade earned.

Dean's List

The Dean's List, prepared and published each semester, gives recognition to students who achieve a minimum 3.50 grade point average or higher with no D or F grades while earning twelve (12) or more credits during the semester or eight (8) or more semester credit hours for the summer session.

Grade Reports

Final grades are mailed to the address on the registration form. Grade reports are not sent if there are outstanding financial obligations to the College.

Attendance

Regular attendance is expected at scheduled class meetings or other activities assigned as part of a course of instruction. Attendance records are kept by instructors.

If personal circumstances may occasionally make it impossible to attend scheduled classes and activities, the College expects the student to confer with instructors in advance when possible. Instructors can offer students the option of making up the material missed. When circumstances are unforeseen, students should consult with instructors to arrange make-up work, if possible.

Absences may be considered by instructors in awarding grades and considering involuntary withdrawal. Students who must interrupt their Ivy Tech training to fulfill Reserve and National Guard annual tour requirements should present an official military order to their instructors prior to departure for duty. Students are not excused from completion of the course work and should make arrangements with their instructors to complete all work.

STANDARDS OF PROGRESS

Ivy Tech has established this Academic Policy in three parts: Part I - Academic Standards; Part II - Satisfactory Progress for Financial Aid; Part III - Appeal of Standards of Progress.

PART I: ACADEMIC STANDARDS

Students who have declared a certificate or degree objective and who

have fifteen (15) or more cumulative credit hours attempted must maintain a 2.00 minimum cumulative grade point average (GPA) to be considered in satisfactory academic standing. Students who have difficulty maintaining the appropriate minimum cumulative GPA must see their faculty advisors or consult the Office of Counseling for advice and assistance.

Students who do not achieve the minimum cumulative GPA (2.00 cumulative GPA for 15 or more semester quality hours earned) at the end of each term of enrollment are not meeting the College's Standards of Progress. If a student has a GPA of under 2.00 after completing six or more credit hours he/she will be selected for Academic Monitoring for the following term. A student selected for Academic Monitoring must meet with his/her department chairperson when selecting courses for the following term. If the student does not achieve a 2.00 cumulative GPA by the time he/she completes fifteen credit hours, he/she will be placed on Academic Probation.

A student who does not achieve the minimum cumulative GPA (2.00 cumulative GPA for 15 or more semester quality hours earned) at the end of each term of enrollment will be placed on Academic Probation for the following term. Students will be able to enroll for that first term on Academic Probation with the understanding that they must raise their cumulative GPA to meet the minimum cumulative GPA by the end of that term.

Students failing to meet Standards of Progress during a term, including Academic Monitoring or Academic Probation, will be subject to specific enrollment restrictions including monitoring/probation registration for the following term. A student who is not meeting Standards of Progress is: restricted to enrollment in no more than twelve (12) semester hours of new course credits and no more than a maximum total of fifteen (15) semester hours during any probationary term in the College. If enrolling for more than twelve (12) semester hours in regular semester credits, a student will be required to repeat a course or courses in which he/she received a grade of D or F in lieu of new course work.

Failure to meet Standards of Progress for one semester or term may result in the following: A) Required attendance at special counseling sessions; B) Enrollment in Basic Skills Advancement courses; or C) Disqualification for graduation. Students on Academic Probation who do not meet Standards of Progress and who do not improve by the end of the first term of Academic Probation shall not be allowed to register for the following term. 'No improvement' means the student has not achieved the

applicable minimum cumulative GPA required in accordance with this Academic Standards Policy or has not successfully earned at least six quality credit hours and attained a 2.00 or better term GPA for the probationary term. Students attaining a 2.00 term GPA for the probationary term will be allowed to enroll but will remain on Academic Probation until attaining the minimum cumulative GPA required in accordance with this Academic Standards Policy. Following the term of non-enrollment, a student may re-enroll as a degree/certificate seeking student with an Academic Probation status. A student will be **terminated from the College for up to five years** if prevented from enrolling twice on an Academic Probation status.

Students who are not allowed to register at one of the Ivy Tech sites may not register at any of the other sites; however, they may petition for re-admission at the site which they originally attended. The re-admission petition may be approved for good and sufficient reason by the College's Academic Status Committee. A student is identified as maintaining Standards of Progress when he/she successfully earns at least six quality credit hours and re-establishes a 2.00 cumulative GPA. Students receiving financial aid must demonstrate satisfactory progress toward completion of a program within a specified time frame, based on their enrollment status. Also, students must successfully complete the minimum number of credit hours required for that status each semester. Questions regarding minimum time frame and status should be directed to the Financial Assistance Office. All students are expected to maintain a cumulative 2.00 GPA for graduation eligibility. Questions on maintaining standards of progress and academic standing should be addressed to the Office of Admissions.

Special Problems

After discussing the problem with an instructor or counselor, if it still seems unreasonable, the student needs to see the Coordinator or program chairperson or department chairperson. If for some reason the problem cannot be resolved at that level, then the student needs to see a Student Services Manager or Divisional Chairperson. After discussion with a Student Services Manager or Divisional Chairperson, if the matter is still not resolved, the student should contact the Dean of Instructional Affairs or Director of Student Services. The student may be directed to follow the appeals process.

PART II: SATISFACTORY PROGRESS FOR FINANCIAL AID

In order to maintain Satisfactory Progress, a student must meet the following standards:

1. Qualitative Standards of Progress

Be in good academic standing by earning at least a 2.00 GPA after attending Ivy Tech for a minimum of four semesters or attaining fifteen (15) or more quality hours, whichever comes first. Students on Academic Probation must raise their cumulative GPA to 2.00, or must receive a 2.00 term GPA (taking six quality hours or more), by the end of the Probationary term, or financial aid will be denied.

2. Quantitative Standards of Progress

Complete the number of credits required for program completion within a specified time frame. Completion of credits is defined as earning one of the following grades: A, B, C, or D.

Quantitative Standards of Satisfactory Progress are measured in two ways: 1) by the number of credits completed each term and 2) by program completion within the maximum time frame allowed.

Each term, in order to maintain Satisfactory Progress, a student is required to complete the number of credit hours indicated for his/her enrollment status.

All students receiving federal and/or state financial aid will be required to complete their programs within the following term and maximum time frames.

A student who does not earn the minimum credit hours required for his/her enrollment status at the end of his/her first term or at the end of any term immediately following a term of Satisfactory Progress, shall be placed on Probation for the next term. During this Probation term, financial aid eligibility may be continued. However, a student who does not remove his/her Probation status by the end of this first probationary term shall be considered as failing to make Satisfactory Progress. Unless he/she successfully appeals this determination, he/ she shall be ineligible for financial aid for the next term of enrollment.

1. Number of Credits Completed

Enrollment Status. **The following designations are used to determine a student's term enrollment status:**

Full-Time:	12 or more semester credit hours
3/4 Time:	9-11 semester hours
1 /2-Time:	8 semester hours

Less than Half-Time	1-5 semester hours

Term Progress

Each term, the aid recipient must complete at least the minimum number of credit hours depending on his/her enrollment status for that term. This includes Basic Skills Advancement courses.

Enrollment Status	Minimum Required Number of Completed Credits per Term
Full-Time	9
Three-Quarter Time	6
Half-Time	4
Less Than Half-Time	All Hours Attempted

Maximum Time Frame

A student is expected to complete all requirements for an Associate Degree or Technical Certificate within the maximum allowable time frame. The following chart shows the maximum allowable time frames for all programs.

Program	Attempted Semester Hours for Maximum Time Frame (Excluding Basic Skills Advancement Courses)
Technical Certificate	74
Associate Degree	99

If a student reaches the maximum number of hours attempted for calculating maximum time frame, and the student has not completed his/her declared course of study, termination of financial aid will occur regardless of changes from one course of study to another. Reinstatement of aid would take place only if the student completed a course of study and subsequently enrolled in a course of study leading to another degree or certificate. In cases where a student is attempting to complete a subsequent course of study, all hours previously earned which apply toward that subsequent course of study will be counted toward the maximum time frame for that degree or certificate.

Financial Aid will be Denied:

1. In those terms following completion of the total maximum time frames. Total maximum time frames include all terms of enrollment during which students are not making Satisfactory Progress and/or are not receiving financial aid.

2. In any term(s) within the maximum time frame following the first probation term in which Satisfactory Progress was not achieved. Financial Aid may be granted for up to thirty (30) credit hours of enrollment in Basic Skills Advancement courses. Educationally-disadvantaged students accepted in an eligible program will beable to enroll in Basic Skills Advancement courses (not counted toward the TC, AS, or AAS degree) in order to ensure their future academic good standing.

Regaining Eligibility for Financial Aid Standards of Progress

Students who are denied financial aid as a result of failure to maintain Satisfactory Progress will regain their eligibility if any of the following conditions are met:

1. Enroll at least half-time at his or her own expense and receive at least a 2.00 term GPA while meeting the Quantitative Standards of Progress. The student will regain financial aid eligibility and will be on probation status the following term.

2. Enroll at his or her own expense and raise his or her cumulative GPA to a 2.00 or higher while meeting the Quantitative Standards of Progress. The student will regain financial aid eligibility and will be in good standing the following term.

3. Students who have been terminated from financial aid, are within their maximum time frame, and return to Ivy Tech after an absence of twelve (12) or more consecutive months will be on Probationary Status during their first term of re-enrollment and may receive financial aid.

PART III: APPEAL PROCEDURE

Academic Appeal

Guidelines, procedures and forms for an appeal because of academic problems are available through the Dean of Instructional Affairs offlce.

Financial Appeal

After discussion of the situation with the Financial Assistance Manager, students will be directed to file a financial appeal with the Financial Assistance Appeals Committee.

GRADUATION

The Associate of Science degree, the Associate of Applied Science degree, or Technical Certificate is awarded by the College to students who meet graduation and certification eligibility requirements. Graduation ceremonies are held each spring. Graduating students are charged a fee to cover the cost of the ceremonial cap and gown.

A student is considered eligible for graduation when the requirements for graduation or certification have been fulfilled in the selected program. Each student entering the final semester prior to graduation must complete an Application for Graduation form. The application will be certified by the student's program advisor and forwarded to the Registrar's Office, where the appropriate diploma will be prepared.

To graduate with the Associate of Science Degree, Associate of Applied Science Degree or Technical Certificate students must:

- Successfully complete all courses within certification requirements with a cumulative grade point index of at least 2.0.

- Satisfy all financial obligations to the College.

Note: An accumulation of credits outside a course of study does not necessarily constitute credits towards a degree/certificate.

STUDENT SUPPORT SERVICES

Career Counseling

The Offices of Admissions and Counseling at Ivy Tech- Central Indiana offer career counseling to all interested students. Students may obtain individual counseling and/or assessment to assist them in identifying their abilities or occupational interests. Counseling and assessments are also helpful in developing realistic education and career plans and occupational outlook data. Students are encouraged to seek assistance in selecting an occupation and the necessary materials by contacting the Office of Admissions.

In addition to the counseling program offered by the Office of Admissions, the College utilizes a faculty advisor system. On admission, each degree student is assigned a faculty advisor whose purpose is to:

1. assist the student in course selection and program planning;

2. guide the student in meeting the requirements for graduation as prescribed by the College;

3. insure that appropriate technical and general education electives are included in the chosen course of study.

Placement

The Office of Placement Services at Ivy Tech - Central Indiana Region assists registered graduates and enrolled students of the college in finding jobs commensurate with their educational qualifications, experience and expectations. Placement staff and program advisors coordinate efforts to refer qualified candidates to appropriate employment opportunities.

The Placement Philosophy is " helping students to maximize the employment process and assisting them in making a smooth transition into the world of work."

The placement office offers a full range of services which encompass but are not limited to the following:

1. Individual employment counseling and career assistance.

2. On-campus recruitment with employers from business and industry.

3. Job Search/Interviewing and Resume Writing Workshops.

4. Classroom presentations.

5. Spring Job Fair : A wide variety of employers participate each year.

6. Resume referral: Over 5,000 jobs are listed annually and are matched with qualified applicants registered with Placement.

7. Credential files and references: Maintained on all registered graduates and undergraduates for employer review and screening purposes.

8. Various computerized services: Resumes by Ralph, State Employment Services (JSMS), KiNexus (candidate registration process), Choices and Passport To Your Future (career exploration software packages).

9. Resource Center: Includes career information, company literature and annual reports, job vacancy notices, information on colleges, and free job search booklets and handouts.

Students are encouraged to register early in their college careers and take full advantage of opportunities available to them from the Office of Placement Services.

Library

The library is part of the Learning Resource Center (LRC), which also includes the Audio Visual Dept. and Media Productions. New acquisitions are carefully selected to meet the needs of the students in their technical and general education courses and in the basic skills advancement programs.

Special features of the LRC include career exploration materials, interlibrary loans, periodicals both general and technical in focus, leisure reading offerings, and audio-visual materials and equipment.

College Bookstore

The Ivy Tech Bookstore is located on the fourth floor of the North Meridian Center. Textbooks, school supplies, calculators, tape recorders, and Ivy Tech shirts and jackets are among the many items available to purchase at the Bookstore. The Bookstore is open 8:00 a.m. to 5:30 p.m. Monday through Thursday and 8:00 a.m. to 4:30 p.m. on Friday. The Bookstore has extended open hours during registration and the first two weeks of each semester/session. Book buy backs are held near the end of each semester/ session and the dates and times are posted in the Bookstore and on the bulletin boards in the hallways.

Child Development Center

Ivy Tech-Indianapolis has an on-campus Child Development Center to meet the need of adult students, College staff and faculty, and locally employed parents and guardians. This licensed center provides on-site training opportunities for practicum students in the Child Development and other Human Services and Health Technologies programs. This model facility is licensed to serve 60 children, ages 2 to 12, from 6:30 a.m. to 10:00 p.m., Monday through Thursday and until 6:00 p.m. on Friday. Note: Hours could vary, depending upon enrollment. The center is open to visitors interested in either the Child Development Program or the Child Development Center services except during naptime, which is 12:30 to 2:30 p.m. daily. Visitors should check with the Center Manager upon arrival.

Cafeteria

Ivy Tech has a full-service cafeteria located on the first floor of the Technology Center.

STUDENT ORGANIZATIONS

Organizations and Activities

The College recognizes the educational, recreational, and social values of student organizations and extracurricular activities which complement the institution's academic programs. Students are encouraged to participate in any or all phases of the student activities program as long as participation does not interfere with studies.

All student organizations operate under the policies and guidelines set for the College by the State Board of Trustees. Approval by the Student Senate and the administration is required of all student organizations seeking to make use of the College facilities. All approved organizations must be open for membership to all eligible candidates and must make available to the Student Senate all records of officers, membership, and financial transactions.

Student Senate

Students in each region are provided opportunities to participate in student government through membership in the Student Senate. The Student Senate is the representative governing body of the students. Student Senate representatives are elected or selected according to the bylaws of each regional Student Senate constitution and serve as stated in those by-laws.

The student body membership may consist of representatives of the flrst-year class, the second-year class, each program area and an advisor as established in the bylaws.

The Student Senate was established by students to encourage participation in student government and to promote College spirit and recognition. The Student Senate exercises the authority, unless otherwise delegated, to legislate on student matters, subject to the approval of appropriate College administrative offices.

The constitutions of all student organizations must be approved by a quorum of the Student Senate, consisting of a simple majority of the total membership and one staff advisor, or as otherwise stated in the bylaws. The functions of the Student Senate include:

1. communication of bona fide concerns of the student body and suggestions for improvement to appropriate College officials;

2. approval of those student organizations deemed beneficial to student life and worthy of being a part of the College;

3. assurance that copies of the constitution, bylaws, and statement of

purpose and objectives of each recognized student organization are on file in the Office of Admissions;

4. referral of student grievances concerning disciplinary matters or student status to the Committee on Student Status; referral of other types of student grievances to appropriate College officials;

5. planning and conducting of all appropriate extracurricular student activities;

6. submission of student activity budgets for review and approval by the regional administration.

Intramural Sports

College sports activities consist of intramural sports sponsored by the Student Senate. Leagues can be formed when student interest justifies their organization. All sports activities of the College msut be approved and sponsored by the Student Senate and the administration.

Class Organizations

The primary purpose of class organizations is to promote classwide social activities and sports functions. Each first- and second-year class may elect a class president, vice-president, secretary-treasurer, class reporter, and representatives-at-large for the Student Senate. Class organizations must be sponsored by the Student Senate.

Clubs

Students wishing to organize hobby, social, or special interest clubs should submit proposals to the Student Senate, which will determine whether sufficient interest exists to form or continue a club. The Student Senate is authorized to charter the club upon approval by the administration. Each club must have the following elected officers: president, vice-president, secretary-treasurer, club reporter, and a Student Senate representative. Each club must also have a staff advisor.

Social Activities

All student group activities of the College must be approved and sponsored by the Student Senate and the administration. Classes, clubs, and other groups should plan and conduct social activities pertaining specifically to their members.

The Student Senate organizes and conducts social activities and gatherings in which all students and their guests may participate.

Professional and Trade Societies

Student chapters of various professional and trade societies will be formed

in the same manner as other student organizations and are subject to the same requirements.

Housing

While Ivy Tech is a commuter campus and does not operate residence halls, the Admissions and Counseling Office may be able to answer questions concerning housing.

Ivy Tech accepts no responsibility for locating, approving, or supervising local student housing.

Student Parking

As of Fall Semester 1991, students will need to register their motor vehicles. Some campuses will require a parking sticker from the cashier's office. A special permit is required to park in the handicapped zone. Stickers are to be displayed in the vehicle while it is parked on campus, and students are expected to park only in designated student parking areas. Vehicles improperly parked in areas reserved for the handicapped, visitors, or others may be towed away at the owner's expense.

Student Insurance

For students registered in credit courses at Ivy Tech, the College provides insurance in a designated amount for injuries sustained while participating in College-sponsored activities. The activity must take place on College premises or on any premises designated by the College. Students are also covered while traveling to and from college-sponsored activities as a member of a group under College supervision in a College vehicle.

It is the student's responsibility to report injuries promptly to the instructor or to Security. The insurance is for a specified minimum amount of coverage. It is not intended to replace insurance coverage students may already have. It is suggested that students review their own coverage.

The Master Policy for this insurance is issued to Indiana Vocational Technical College and is on file at the office of the Director of Personnel Services at College Central Offices. The description of the hazards insured, benefits, and exclusions is controlled by the Master Policy. Should students have questions, they may contact the regional Admissions and Counseling Office.

An insurance company offers health insurance to Ivy Tech students. Insurance coverage is purchased directly from the insurance company by the student. Application forms and brochures explaining coverage and rates are available through Student Services during course registration periods. Coverages and rates are subject to change.

Emergency Closing of Campus

It is possible that severe weather conditions or other emergencies will make it necessary to close a campus. Ivy Tech-Central Indiana has designated local radio station WIBC to announce information on closings.

STUDENT RIGHTS AND RESPONSIBILITIES

Student Conduct

The reputation of Ivy Tech and the community depends, in large part, upon the behavior of its students. Students enrolled at the College are expected to conduct themselves in a mature, dignified and honorable manner.

Students are subject to College jurisdiction while enrolled at Ivy Tech. The College reserves the right to take disciplinary action against any student whose conduct, in the opinion of Ivy Tech representatives, has not been in the best interests of the student, other students, or the College.

All Ivy Tech students are expected to abide by the following College rules of conduct.

"Student" as used refers to a student, a group of students, a prospective student or a group of prospective students.

Ivy Tech - Central Indiana complies with regulations governing Drug Free Schools and Campuses (34 CFR Part 86). Information about community drug and alcohol abuse programs is available in the Counseling Office located on the first floor of the North Meridian Center.

College Rules

1. ALCOHOLIC BEVERAGES In compliance with Indiana state law, consuming, being under the influence of, or possessing intoxicating beverages on College property is not permitted.

2. ILLEGAL USE OF DRUGS In compliance with Indiana state law, being under the influence of, use of, possession of, or distributing illegal drugs is not permitted.

3. SMOKING In compliance with Indiana state law, Ivy Tech buildings are classified as "nonsmoking" facilities. Smoking is permitted only in designated areas.

4. ASSEMBLY College policy states that assembly in a manner that obstructs the free movement of others about the campus, inhibits the free and normal use of the College buildings and facilities, or prevents or obstructs the normal operation of the College is not permitted.

5. SIGNS Students may erect signs on campus or display signs or posters on designated bulletin boards after receiving written approval from the appropriate College official.

6. SOLICITATION OF FUNDS College policy requires that individuals or organizations seeking the use of campus facilities or scheduling activities to solicit funds, must first obtain written approval from the appropriate College official.

7. ARMS/ DEADLY WEAPONS In compliance with Indiana state law, possession of firearms (except those possessed by police or officers) are prohibited on College property or at any College sponsored activity held elsewhere.

8. CHEATING Cheating on papers or tests is a violation of College rules.

9. COUNTERFEITING AND ALTERING College policy states that copying or altering in any manner any record, document, or identification form used or maintained by the College is not permitted.

10. THEFT OF PROPERTY Theft of personal or College property is a violation of College rules.

11. VANDALISM The destruction or mutilation of Ivy Tech books, magazines, equipment or buildings is a violation of College rules.

12. USE OF COLLEGE FACILITY Students are permitted on campus during normal published Ivy Tech hours and at other times established in the College calendar. Students wishing to utilize College facilities at other times must request permission from the appropriate College official.

13. FINANCIAL RESPONSIBILITY Students are expected to pay all fees, fines, or loans in a timely manner.

14. MOTOR VEHICLES Students are expected to comply with parking regulations. Handicapped parking spaces and visitors' areas are reserved for those purposes, and vehicles improperly parked in those areas may be ticketed or towed at the owner's expense.

15. HARASSMENT AND/OR INTIMIDATION This is defined as conduct causing alarm, or creating a risk by threatening to commit crimes against persons or their property or making unwelcome sexual advances or requests for sexual favors. This also covers harassment or intimidation of persons involved in a disciplinary hearing and of persons in authority who are in the process of discharging their responsibilities.

16. STUDENT RIGHT-TO-KNOW Ivy Tech - Central Indiana follows the Student Right-to-Know and Campus Security Act, Public Law 101-542, as amended by the Higher Education Technical Amendments of 1991, Public Law 102-26. Required information is available to prospective and current students through the Admissions Office.

Campus Security Information

Ivy Tech - Central Indiana is required by Federal law to report the frequency of criminal activity which occurs on its campus to current and prospective students, faculty, staff and parents.

Any student, prospective student, faculty, or staff person who has been a victim of, or witness of, a criminal act which occurred on any of the facilities or grounds of any Ivy Tech campus is encouraged to immediately report this act to Campus Security. Campus Security operational hours are posted on campus.

Each Ivy Tech campus employs adequate security staff to whom all criminal activity should be reported. It is College policy to assist the police in any investigation which they conduct.

Violations

The College maintains jurisdiction over violations of any College rules. This includes those listed above and any others communicated to students.

Students and Ivy Tech employees are protected from those who might violate laws and ordinances. Violators shall be subject to prosecution by the appropriate law enforcement officials.

Anyone found in violation of Ivy Tech regulations shall be subject to disciplinary action by the College through due process procedures for student conduct violations. Copies of the student conduct regulations are available on closed reserve in the Learning Resource Center and are available through the Admissions Office.

Process

Students have the right of due process. Students are provided an opportunity to appeal any disciplinary decision and are required to sign a waiver if they choose to waive the right to appeal. The basic process in discipline cases is as follows: entitlement to notice of charges, notice of possible penalty, and opportunity to explain a defense to some authority.

Due Process Procedures

Due Process provides the College an appropriate mechanism to deal with violation of student conduct and conversely allows a student with a disagreement to grieve against a College personnel's decision affecting that

student. The intent of due process is to provide a process or procedure for unbiased review of a particular case or situation. **The intent, rather than the mechanism, is the focus of this process. Thus, exceptions to the specifics and mechanisms can and will be made.**

Due Process Procedures for Student Conduct Violations

Generally in the due process a College staff member will point out unwanted or unfavorable behaviors. If the behavior is in violation of acceptable student conduct, the staff member may evoke disciplinary measures. If necessary, the process moves from the individual College member to his/her respective supervisor for review. If the student's action continues or further action is necessary, the College staff member will continue to pursue the standard procedure of discussing the situation with her/her supervisor.

The student will be apprised of the unwanted behaviors and the steps necessary to correct the behaviors. At this point the appropriate supervisor can also recommend required counseling or follow one of several disciplinary action tracts, including but not limited to, verbal reprimand, restitution for damages, restriction of privileges, suspension or dismissal.

If the student disagrees with the course of action set forth, the student may then ask to see a manager or department heard or divisional chairperson, whichever is appropriate in the hierarchal structure. After review and recommendation at that level the student, if unsatisfied, can see the appropriate Director or Dean of the area of the College such as the Dean of Instructional Affairs or the Director of Student Services.

1. All cases or appeals of student misconduct and/or lack of academic integrity must be referred to one of the Administrators.

2. The administrator may evoke temporary suspension of the student of not more than five school days. If there is still not resolution from a director or Dean's level, due process involves requesting a review by the Student Status Committee. All cases or appeals meriting suspension or disciplinary dismissal must be referred to the Student Status Committee.

3. Students recommended for dismissal will be notified by their advisors in writing. Students will be given an opportunity to appeal the decision of the Student Status Committee if they so choose. Each region of the College has a Committee on Student Status, composed of at least two instructors, two students designated by the Student Senate, and two administrative persons.

4. The Student Status Committee deals with all cases relating to disciplinary actions or the academic status of students. Each Regional institute has a Student Status Committee that makes recommendations to the Vice President/Dean.

a. The Student Status Committee will be composed of at least six members, including two full-time instructional staff members and two administrative staff persons appointed by the Vice President/Dean of the region. The additional two members will be students designated by the Student Senate. The Committee's review and subsequent disposition of a formal complaint will begin no later than thirty (30) days after receipt of the written complaint. Staff legal counsel, as needed, will be available to the Committee.

b. The Student Status Committee will assure the due process. A written statement will be presented to the student by the chairman of the Student Status Committee. The student will be invited to speak on his/her own behalf.

c. The chairperson of the Student Status Committee will notify the student and necessary staff in advance of the meeting of the Student Status Committee (and the written grievance) within one week by mail (preferably registered).

d. The Student Status Committee will issue a recommendation to the Vice President/Dean who will make a final decision in the grievance process.

e. All parties involved will be informed in writing of the decision of the Student Status Committee and of the subsequent recommendations to the Vice President/ Dean, whose decision is final.

f. If the student disagrees with the Student Status Committee recommendation, he/ she may file a complaint with the regional Vice President/Dean within 72 hours after notification of the Student Status Committee's decision.

g. Exceptions to these rules may be made in extenuating circumstances at the discretion of the Vice President/Dean or his designee upon request by the party involved.

h. Copies of the above process are available to all students at the Learning Resource Center.

Student Status Committee

A Student Status Committee has been created to deal with all cases relating to disciplinary status of students. Grievances of students as to disciplinary status may be heard by the Student Status Committee.

The Committee will be composed of at least six members, including two full-time instructors and two administrative staff persons. The additional two members will be students designated by the Student Government Association or the campus Chief Administrative Officer or her/his designee. The Committee's review and subsequent disposition of formal complaint will begin no later than thirty days after receipt of a written complaint. Staff legal counsel advice will be available to the Committee

when needed.

A record will be kept by the Student Status Committee and filed in the student's academic file upon resolution of each complaint. The campus Chief Administrative Officer will review the Committee's recommendations and will confirm or modify them. This decision will be final.

Notice to the grievant will include:

1. Notice of actions and meetings at all stages of this formal complaint procedure will be provided to the grievant;

2. An opportunity to be heard will be provided;

3. An opportunity to question witnesses at hearings as appropriate will be arranged;

4. The student may have a representative present when presenting facts or being questioned about the complaint during any formal hearing proceedings.

Disciplinary Action

A student who violates the rules and regulations of the College may be subject to any of the following disciplinary actions:

1. Verbal reprimand;
2. Restitution for damages;
3. Restriction of privileges;
4. Withdrawal from a course, program or the College;
5. Suspension from the College;
6. Dismissal from the College.

Instructors, through the Dean/Director of Instructional Affairs or other administrators through the Director of Student Services, can recommend to the Student Status Committee that a student be withdrawn from a course, program, or the College, for disciplinary reasons. Students recommended for dismissal will be notified by their advisors and will be given an opportunity to be heard by the Student Status Committee before such action is final. Disciplinary dismissals from the College will be final only after review by the Student Status Committee and at the discretion of the Chief Administrative Officer of the campus. Students dismissed for disciplinary reasons will not be entitled to refunds.

Student Grievance Policy

1. Bring your complaint to the attention of your instructor or your advisor.

2. Your advisor or instructor will provide you a conference within two weeks of the notice of your complaint.

3. If you feel that such a conference with your advisor would be futile because of the advisor's involvement in the grievance, you may elect to request a conference with a department head, division chair or the Dean/Director of Instructional Affairs as deemed appropriate. This conference will also be held within two weeks of the notice of your complaint.

4. If the complaint is not resolved to your satisfaction through the informal procedure, you may submit the grievance in writing to the Director of Student Services. Exception: if the complaint is filed against the Director of Student Services, his/her responsibility in these procedures shall be assumed by the Dean/Director of Instructional Affairs.

5. The formal complaint brought by a student must: a. Clearly state the facts giving rise to the grievance; b. The remedy sought by the complaining party; c. The complaint must be signed and dated.

6. The written complaint shall be filed in the office of the Chief Administrative Officer and forwarded to the chairperson of the Student Status Committee unless the Chief Administrative Officer decides to resolve the complaint in another way which will be explained to the grievant in writing.

7. The Student Status Committee is responsible for review and disposition of any such complaint forwarded to it.

8. The disposition of a formal grievance procedure may be one of the following.

A. Refuse further action—if no formal case has been made by the complainant the matter will be refused in writing to said grievant with reasons for this action. The grievant may resubmit the complaint once within 30 days providing there is additional information to be submitted. If not, the decision is final.

B. Fact-finding and mediation—the Committee itself can engage in investigation of the allegation as an attempt to mediate with parties a mutually agreeable resolution of the matter. A signed agreement should be generated summarizing the issue and resolution, if agreement is reached.

C. Referral—the complaint may be referred to a more appropriate forum for action.

1. If a discrimination complaint, it should be referred to the Affirmative Action Officer to be initially processed under the College Affirmative Action Plan. If a hearing is necessary, the Affirmative Action Officer may return the matter, with advice, to the Student Status Committee for a formal hearing.

2. If the Committee believes a policy or procedure of the College is being legitimately challenged, it will refer the grievance to the Chief Administrative Officer of the campus with an explanation of its concern.

B. Remand complaint - if it appears no legitimate informal attempt to resolve the matter has taken place and it appears such discussion might lead to resolution of the complaint, then referral of the matter to the student advisor or other approval appropriate staff person for review and discussion with the student would be in order. If resolved, a report to the Student Status Committee will be made by such staff person. The Student Status Committee will review the agreement reached with the student to assure that in fact there was mutual agreement and understanding.

E. Hold formal hearing - if a grievance cannot be resolved utilizing the steps listed above, the committee may hold a formal hearing. If held, witnesses may be called, including the parties to the complaint. A recommendation will then be formulated and a report made to the Chief Administrative Officer of the campus of the suggested resolution of the matter.

APPLIED SCIENCE AND TECHNOLOGIES DIVISION

The Division of Applied Science and Technologies provides broad, practical training for those seeking employment and advancement in technical occupations. The programs emphasize the ability to think and plan in the job setting. Initial laboratory experiences develop skills in the use of modern industrial equipment and measuring instruments. Later classroom and laboratory work provide training in industrial applications of theory, analysis, design, and construction techniques. Each program provides opportunities for the student to advance from basic skills to proficiency on a high technological level.

Program advisory committees, composed of experts in each area of industry, serve the important function of keeping the content of the program current with the changes in technology. Ivy Tech's programs and courses are designed to meet the needs of local industries.

The Division has long maintained a high graduate placement rate. In fact, 97% of the 1991 graduates were employed at an average rate of $24,500 a year. Of course, this salary range is not only an indicator of the educational attainment of the graduates but also reflects the graduates' previous work experiences, attitudes, aptitude, and motivation.

The Division offers six programs of study with Career Development Certificates, Technical Certificates and Associate of Applied Science Degrees. Within the six programs a student may select from a wide range of Career Certificates or specialty areas.

DESIGN TECHNOLOGY

Specialties:

Architectural

Mechanical

Civil

Construction Management

The Design Technology Program uses the latest state of the art technology CAD equipment along with the more traditional "board" techniques in its coursework. This balance of equipment provides students with the diversity necessary to be competitive in the job market.

The student may specialize in one of four areas of specialization: Mechanical, Architectural, Civil Drafting or Construction Management. These specialties have many common areas of study that develop a working knowledge used within both the building and manufacturing sectors.

A two-year program, requiring completion of 64 credits, leads to an Associate of Applied Science degree. A one-year Technical Certificate (33 credits) and a one semester Career Certificate of 15 Credits are also available.

Architectural Drafting/CAD Specialty: This specialty prepares students for employment as technicians with architectural firms, construction firms, building materials and supply firms, and local, state or federal government agencies.

Civil Drafting/CAD Specialty: The Civil Specialization prepares the student for employment in civil engineering firms, construction firms, surveying firms, and highway departments. Graduates of the associate degree program are prepared for drafting or CAD positions in the office, or on-site.

Construction Management Specialty: The Design Technology graduate, with a specialty in Construction Management, will have the background necessary to be an office supervisor or estimator with a builder, construction firm, or developer.

Mechanical Drafting/CAD Specialty: This specialty prepares the student to provide complete and accurate technical working drawings, using CAD or board skills; from sketches, notes, and specifications from engineers, designers, and senior detailers. The finished drawings will be used in the production of various products and systems.

Design Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			(27 Credits)
*DCT	102	Technical Graphics	3
*DCT	103	CAD Fundamentals	3
*DCT	104	Product Drafting	3
*DCT	105	Facilities Design and Layout	3
*DCT	106	Descriptive Geometry	3
*DCT	107	Advanced CAD	3
DCT	202	CAD Programming Language	3
DCT	203	Statics and Strengths of Materials	3
DCT	217	Product Design	3

AAS/General Education Requirements			(19 Credits)
*ENG	101	English Composition I	3
ENG	103	Speech	3
*MAT	101	Algebra I	3
*MAT	103	Geometry/Trigonometry	3
*SOC	101	Human Relations	3
SCI	101	Physical Science	3
SCI	102	Physical Science Lab	1

AAS/Regional Courses			(18 Credits)
Architectural Drafting Specialty			
*DCT	109	Construction Materials/Specifications	3
DCT	206	Mechanical and Electrical Equipment	3
DCT	210	Surveying	3
DCT	211	Commercial Structures I	3
DCT	212	Commercial Structures II	3
DCT	213	CAD Mapping	3

Mechanical Drafting Specialty			(18 Credits)
*AMT	101	Manufacturing Processes	3
DCT	207	Die Design	3
DCT	214	Machine Design	3
DCT	215	Electronics/CAD	3
DCT	216	Jig and Fixture Design	3
DCT	218	CAD/CAM Design	3

Civil Drafting Specialty **(18 Credits)**

DCT	109	Construction Materials and Specifications	3
DCT	210	Surveying I	3
DCT	213	CAD Mapping	3
*DCT	288.02	Civil Fundamentals	3
DCT	288.03	Surveying II	3
DCT	288.04	Civil II	3

Construction Management Specialty **(18 Credits)**

*DCT	109	Construction Materials and Specifications	3
DCT	206	Mechanical and Electrical Equipment	3
DCT	209	Estimating	3
DCT	210	Surveying I	3
ELT	104	Computer Programming for Technicians	3
IST	202	Production Planning and Control	3

Total AAS Credits **64**
***Total Technical Certificate Credits** **33**

COURSE DESCRIPTIONS

DCT 102 - TECHNICAL GRAPHICS
3 Credits
This entry level course introduces the basic detailing skills commonly used as a drafting technician. Areas of study include: lettering, sketching, proper use of equipment, geometric construction; with emphasis on orthographic (multi-view) drawings dimensioned and noted to ANSI standards.

DCT 103 - CAD FUNDAMENTALS
3 Credits
The purpose of this course is to provide students with an understanding of the features, limitations, and considerations associated with the operation of a computer-aided design (CAD) system. Students will gain valuable hands-on experience using the AutoCAD (micro-based) software. They will be expected to complete several projects (increasing in difficulty) relating to command topics covered on a weekly basis.

DCT 104 - PRODUCT DRAFTING
3 Credits
This is a continuation of the Technical Graphics course (DCT 102) with emphasis on detailing using advanced orthographics and sectioning techniques. Isometrics and perspective drawing formats will be presented as means of illustrating the finished product. Fastening devices, including thread symbols and nomenclature, miscellaneous hardwares and weld symbols will be introduced. Basic tolerancing, classes of fits, and the use of parts lists, title, and revision blocks will also be presented. Prerequisite DCT 102.

DCT 105 - FACILITIES DESIGN AND LAYOUT
3 Credits
This course introduces the student to architectural drawing techniques. Emphasis will be placed on space planning, orientations, and traffic flow. Building codes, building materials, and construction principles will also be covered. The student will be required to draw a floor plan, and elevation of an assigned facility.

DCT 106 - DESCRIPTIVE GEOMETRY
3 Credits
This course introduces fundamental principles in developing graphical solutions to engineering problems. Auxiliary and development techniques will be studied True size and shapes of oblique objects will be graphically calculated in solving sheet metal, piping, and many other real world problems. Prerequisite DCT 102 or equivalent.

DCT 107 - ADVANCED CAD
3 Credits
This course continues the student's application into advanced AutoCAD commands which will lead to the creation of prototype drawings. Graphic manipulation of symbol libraries, utilization of advanced dimensioning techniques, and an introduction to the 3-D coordinate system will be emphasized . Prerequisite DCT 103.

DCT 109- CONSTRUCTION MATERIALS AND SPECIFICATIONS
3 Credits
This course introduces the student to the various construction materials, specs, and standards, and the reapplications and installation techniques. Building Codes, materials estimating ("take offs" from prints) will also be covered.

DCT 202 - CAD PROGRAMMING LANGUAGE
3 Credits
This course introduces the advanced CAD user to AutoLISP programming language used in the customization of AutoCAD programs and menus. The student will load and execute macros and simple LISP programs used for special applications. Three dimensional concepts using AutoCAD's Advanced Modeling Extension will also be covered. Prerequisite DCT 107.

DCT 203 - STATICS AND STRENGTH OF MATERIALS
3 Credits
This course is designed to instruct the student on the fundamentals of theory and application of mechanics. Introduction to the basic principles of forces, stresses, shear, moments, and their reactions is included. The review of geometry (areas and volumes) along with a practical application of trigonometry is discussed. Prerequisites MAT 101 and/or MAT 103.

DCT 206 - MECHANICAL AND ELECTRICAL EQUIPMENT
3 Credits
This course focuses on the mechanical and electrical layout drawings required for a structure. Electrical load calculations, wire sizing, and circuits are studied. Plumbing requirements, fixture units, and pipe sizing are calculated and drawn. Heating systems, duct layout, and sizing are also a part of this course.

DCT 207 - DIE DESIGN DRAFTING
3 Credits
This course introduces the student to die design as it pertains to the stamping industry. The design of blanking, piercing, and forming dies using standard die sets and component hardwares, as well as material reaction to shear, cutting clearance, nesting of blanks, will be studied. The student will use AutoCAD's Release 11, and the 3-D modeling (AME extension) software to do the assigned detailing projects. Prerequisites DCT 104 and DCT 107.

DCT 209 - ESTIMATING
3 Credits
A basic course which introduces estimating procedures used in the building industry. Students will study material takeoffs, estimating overhead expenses, contingencies, labor and equipment. This course may involve the use of computers to generate takeoffs and do pricing. Prerequisites DCT 103, DECT 109.

DCT 210 - SURVEYING
3 Credits
This course introduces surveying equipment, procedures for performing measurements, turning angles, determining grades and other field applications. Surveying techniques and computations using the level, chain, and transit in calculating areas, lines, and grades will be covered in this course. Prerequisite MAT 103.

DCT 211- COMMERCIAL STRUCTURES I
3 Credits
This course deals with the planning and detailing of a commercial building. The selection of materials, specifications, and their proper installation techniques are incorporated into the set of detail drawings of a commercial building. The student will complete a foundation plan, the floor plans, exterior elevations, and wall sections. Prerequisite DCT 105.

DCT 212 - COMMERCIAL STRUCTURES II
3 Credits
This course continues the planning and detailing drawings of the commercial structure introduced in DCT 211. Covered in this course will be final room finishes, stair detail, elevator details, room and window schedules and a plot plan. Finishing material and interior design will also be discussed. Prerequisite DCT 211.

DCT 213 - CAD MAPPING
3 Credits
This advanced civil/construction course covers the concepts of map making with computer aided drafting and typical drafting media found in the industry. Civil engineering applications of mapping procedures including profiles, topography, and site plans will be studied. Prerequisite DCT 103 and DCT 107.

DCT 214 - MACHINE DESIGN
3 Credits
This non-calculus course is designed to present practical solutions to mechanical design problems. The student will study the design of various elements, including gears, cams, linkages, shafting and other indexing hardwares, including bearings and lubrication. Basics in fluid power and industrial piping fundamentals will be covered, including hydraulics, pneumatics, valves, symbols, fittings, and schematics. Prerequisite DCT 104.

DCT 215 - JIG AND FIXTURE DESIGN
3 Credits
This course introduces the student to electronic schematics, drill indexing, and printed circuit board design. Emphasis is on the creation and manipulation of basic symbols, connection diagrams, block and logic diagrams, including the use of figure parts and data extract. This course can be taught either as a board drafting course or as a computer-aided drafting course. Prerequisites DCT 103, DCT 104, DCT 107.

DCT 216 - JIG AND FIXTURE DESIGN
3 Credits
This course introduces the intermediate level student to tooling design and production schedules. Emphasis is placed on designing to standard tooling components such as locators, supports, clamping and numerous other purchasable hardwares. Implementation of CAD database tooling software packages on AutoCAD will be utilized with the student's CAD project. Prerequisites DCT 103, DCT 104, DCT 107.

DCT 217 - PRODUCT DESIGN
3 Credits
This course provides the student an opportunity to apply all previously acquired knowledge in product drafting to the design of a new or existing consumer product. The student will consider the function, esthetics, cost economics, and marketability of the product. A research paper and product illustration are required. Prerequisite DCT 104.

DCT 218 - CAD/CAM DESIGN
3 Credits
This advanced computer-aided drafting and computer aided machining (CAD/CAM) course covers the development of various machine routines. The course introduces computer-assisted machining as it relates to automated milling and machining centers. It emphasizes proper programming techniques, control familiarity, file data, and machining functions. Prerequisites DCT 103, DCT 107.

DCT 288.02 - CIVIL FUNDAMENTALS
3 Credits
This course is designed to explore the broad field of Civil Engineering. An overview of "infrastructure" design: the study of roadways and drainage systems will be presented. Emphasis will be placed on the site development and land use planning.

DCT 288.03 - SURVEYING II
3 Credits
This surveying course focuses on the construction applications of surveying, primarily in civil construction areas. This course employs both theodolite and state-of-the-art "total station" technology. Emphasis will be placed on the field procedures including building layout and route surveys. Class work will also involve computations of errors and coordinates. Prerequisites DCT 1210.

DCT 288.04 - CIVIL II
3 Credits
Construction management techniques, such as scheduling and contracts, are illustrated in this class. Students study soil properties and different types of paving methods. Practical considerations in civil-type construction are examined. Prerequisite DCT 288.02.

ELECTRONICS TECHNOLOGY

Specialties:

Digital/Communications

Industrial Electronics

Electronics Maintenance Apprenticeship (offered to graduates of the Indianapolis Electrical Joint Apprenticeship and Training Committee)

The Electronics Technology program provides comprehensive instruction to prepare students for entry into a wide range of positions in the electronics field. While receiving a core of general electronics, the student may specialize in industrial electronics or digital/communications technology. Post-curriculum specialization courses are also available.

Completion of the two-year Electronics Technology program of 69 credits leads to an Associate of Applied Science degree.

Digital and Communications Technology Specialty: This program provides the student with AC/DC electronic skills and advances into circuit theory and application of solid state devices, digital principles, electronic communications and computer systems. This two year Associate of Applied Science Degree program should enable a graduate to seek employment

as an electronics or computer technician. Type of employment could be an electrical equipment installer; AM, FM, CB, Stereo or TV technician; antenna or cable installer; digital, computer and peripherals technician; appliance, radio or high frequency equipment repairman.

Industrial Electronics Specialty: This program provides the student with AC/DC electronic skills and advances into circuit theory and application of solid state devices, digital principles and industrial programmable controls and systems. This two year Associate of Applied Science Degree program should enable a graduate to seek employment as an industrial electronics technician. Types of employment could be an electrical equipment installer; process control equipment technician; electronics instrumentation technician; AC/DC machines installer and technician; manufacturing systems installer; calibration and maintenance technician.

Electronics Maintenance Apprenticeship Specialty: Upon graduation from the Indianapolis Electrical Joint Apprenticeship and Training Committee program, the student advances into circuit theory and application of solid state devices, digital principles and microprocessors. This Associate of Applied Science Degree program should enable a graduate to seek employment in the electrical trades and/or as an electronics or computer technician. As an electronics technician, types of employment could be an electrical equipment installer; digital computer technician, AC/DC machines installer and technician; calibration and maintenance technician; appliance equipment repairman.

Electronics Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(36 Credits)**
ELT	100	Circuits I	4
ELT	101	Circuits II	4
ELT	102	Electronic Circuits Lab	2
ELT	103	Digital Principles	4
ELT	104	Computer Fundamentals for Technology	3
ELT	105	Solid State I	4
ELT	106	Digital Applications	4
ELT	201	Solid State II	4
ELT	202	Microprocessors	4
ELT	204	Linear Integrated Circuits	3

General Education Requirements			(21 Credits)
ENG	101	English Composition I	3
ENG	103	Speech	3
MAT	104	Algebra/Trigonometry I	3
MAT	105	Algebra/Trigonometry II	3
SCI	103	Physics I	3
SCI	105	Physics II	3
SOC	101	Human Relations	3

AAS/Regional Courses **(12 Credits)**

For Industrial Electronics Specialty students should select six credits from the following:

ELT	107	Industrial Electronics	4
ELT	203	Introduction to Industrial Controls	3
ELT	288.30	Special Topics in Feedback Circuits	2
IMT	104	Fluid Power Basics	3

Students should select six credits from the following:

AMT	102	Introduction to Robotics	3
CIS	109	UNIX V Operating System OR	3
CIS	212	"C" Programming	3
DCT	103	CAD Fundamentals	3
ILT	201	Industrial Instrumentation and Techniques I	3

For Digital/Communications Specialty, the student should select 6 credits from the following:

ELT	108	Communications Electronics	3
ELT	208	Microwave	3
ELT	209	Advanced Communication Electronics	3

Students should select six credits from the following:

ELT	109	Telecommunications	3
ELT	205	Peripherals	3
CIS	109	UNIX V Operating System or	3
CIS	212	"C" Programming	3

Total AAS Credits **69**

Electronics Maintenance Apprenticeship
Associate of Applied Science Degree

AAS/Technical Core Courses			**(26 Credits)**
ELT	103	Digital Principles	4
ELT	104	Computer Fundamentals for Technology	3
ELT	105	Solid State I	4
ELT	106	Digital Applications	4
ELT	201	Solid State II	4
ELT	202	Microprocessors	4
ELT	204	Linear Integrated Circuits	3

General Education Requirements			**(18 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
MAT	104	Algebra/Trigonometry I	3
MAT	105	Algebra/Trigonometry II	3
SCI	103	Physics I	3
SOC	101	Human Relations	3

Transfer Credit
Approved Credits from the Apprenticeship Training **(25 Credits)**
Total AAS Credits **69**

COURSE DESCRIPTIONS

ELT 100 - CIRCUITS I
4 Credits
A study of electrical principles and laws pertaining to DC circuits. The relationship of passive components when used in simple and complex circuits are analyzed. Ohm's law, Kirchhoff's laws, ammeters, voltmeters, ohmmeters, capacitance and power are discussed. Magnetism, magnetic induction, inductance and AC principles are introduced. Prerequisite BSA 051; Corequisite ELT 102; Prerequisite or Corequisite MAT 104.

ELT 101- CIRCUITS II
4 Credits
A study of electrical principles and laws pertaining to alternating current and voltage. DC and AC network theorems, j operator, phasors, reactances, impedances, phase relationships, power, resonance, transformers, polyphase and filter circuits are studied. Prerequisites are ELT 100, ELT 102; Prerequisite or Corequisite MAT 105.

ELT 102 - ELECTRONIC CIRCUITS LAB
2 Credits
This course allows hands-on laboratory experience in the understanding of principles taught in ELT 100. Use of basic hand tools and test equipment such as voltmeters, ammeters, ohmmeters and impedance bridges are taught. Student will receive training in troubleshooting skills, safety and care of equipment. Fabrication and soldering techniques are discussed and practiced, culminating with a project fabricated and tested by the student. Prerequisite BSA 051; Corequisite ELT 100; Prerequisite or Corequisite MAT 104.

ELT 103 - DIGITAL PRINCIPLES
4 Credits
Introduces digital electronics including logic gates and combinational logic circuits. Binary arithmetic, Boolean algebra, mapping, digital encoders and decoders, multiplexers and demultiplexers, and arithmetic circuits are also studied. SSI and MSI digital integrated circuits are used in this course. Prerequisite BSA 051.

ELT 104 - COMPUTER FUNDAMENTALS FOR TECHNOLOGY
3 Credits
Provides an introduction to microcomputer hardware, applications and software. Emphasis is placed on computer literacy, disk operating systems (DOS), and computer programming. Commonly used microcomputer applications are surveyed. Prerequisite BSA 051.

ELT 105 - SOLID STATE I
4 Credits
A study of the characteristics and applications of semiconductor devices and circuits. Topics covered are signal and rectifying diodes, bipolar transistors, single and multistage voltage amplifiers, AC/DC load lines, biasing techniques, equivalent circuits and power amplifiers. Prerequisite or Corequisite ELT 101.

ELT 106 - DIGITAL APPLICATIONS
4 Credits
A continuation of ELT 103. Course provides an advanced study of digital systems including memory and analog-digital conversions. The construction, design and operation of timing circuits, display systems, registers, counters and arithmetic circuits are conducted. Microprocessor circuits and systems are introduced. Prerequisite ELT 103. Prerequisite or Corequisite ELT 101

ELT 107 - INDUSTRIAL ELECTRONICS
4 Credits
An overview of electronics applied in the industrial setting. Introduction to various applications of the industrial system and how electronics are applied to these systems. Introduces power machines, polyphase systems, transducers, power transformers, SCRs and other thyristors. Prerequisite ELT 103 and 105 . ELT 201 is recommended as a pre-or corequisite course, but not required.

ELT 108 - COMMUNICATIONS ELECTRONICS
3 Credits
An overview of communication circuits with an emphasis on AM, FM, SSB and stereo transmitter and receiver systems. Includes noise, modulation/demodulation principles, phase-locked loop, RF amplifiers, automatic gain control, detectors, limiters and discriminators. Hands-on lab exposure of analog circuits utilizing analysis and troubleshooting tecniques is offered. Prerequisite ELT 105. Prerequisite or Corequisite ELT 201.

ELT 109 - TELECOMMUNICATIONS
3 Credits
Examines various methods in transmitting digital data from one location to another. Time and frequency division multiplexing are covered. Includes pulse-code and delta modulation, telemetry, error detection and correction and simple networks. Techniques for logical troubleshooting of telephonic systems are covered. Prerequisites ELT 104,105 and 106. Pre or Corequisite ELT 202.

ELT 113 - BASIC ELECTRICITY
3 Credits
Study of electrical laws and principles pertaining to DC and AC circuits. Includes current, voltage, resistance, electrical power, inductance, capacitance, and power transformers. The use of electrical test equipment along with standard tests and trouble-shooting procedures are shown. Safety procedures and practices are emphasized.

ELT 201- SOLID STATE II
4 Credits
A study of the applications of special-purpose diodes, thyristors and unipolar transistors. Frequency effects and response of amplifiers are discussed. Includes discreet SCRs, FETs, UJTs, oscillators, linear regulated power supplies and switching regulators. Prerequisite ELT 105.

ELT 202 - MICROPROCESSORS
4 Credits
Introduction to microprocessor system organization, operation, design, troubleshooting and programming. A microprocessor instruction set is investigated and analyzed for its operation. Laboratory experience includes building and programming a simple computer and working with microprocessor trainers. Techniques for logical troubleshooting of microprocessors are covered. Prerequisites ELT 104 and 106.

ELT 203 - INTRODUCTION TO INDUSTRIAL CONTROLS
3 Credits
Basics of industrial controls as related to industrial electronics. Includes basic and pilot devices, ladder static and control logic, industrial schematics, programmable and variable frequency controllers. Prerequisites ELT 103, 104, and 107.

ELT 204 - LINEAR INTEGRATED CIRCUITS
3 Credits
Introduction to Operational Amplifiers (Op Amps) characteristics and operations. Covers filters, inverting and noninverting amplifiers, differential amplifiers, linear regulators, switching regulators, voltage comparators, electronic timers, and multivibrators. Prerequisite ELT 105; pre- or Corequisite ELT 201.

ELT 205 - PERIPHERALS
3 Credits
In-depth study of peripherals used with typical computers and interfacing of the microcomputer with peripherals. The installation, setup, maintenance, repair and replacement of common peripherals are covered. Introduces design of basic circuits and interfacing to various input/output transducers and industrial equipment. Techniques for logical troubleshooting of microcomputer systems are covered. Prerequisites ELT 104, 105 and 106. Prerequisite or Corequisite ELT 202.

ELT 208 - MICROWAVE COMMUNICATIONS
3 Credits
Focuses on microwave transmission lines, waveguides, waveguide components, including hybrid couplers, attenuators, microwave filters, phase shifters, T-junctions, irises, and microwave tubes. Prerequisite ELT 108.

ELT 209 - ADVANCED COMMUNICATIONS ELECTRONICS
3 Credits
The basics of antenna principles and wave propagation together with an in-depth study of matching techniques for transmission lines. Includes the Smith Chart and a thorough study of television operation. Radiation patterns will be measured with different antenna arrays. Signal tracing troubleshooting techniques will be practiced on a Zenith Color TV set. Prerequisite ELT 108.

ELT 288.30- SPECIAL TOPICS IN FEEDBACK CONTROL CIRCUITS
2 Credits
An overview of the electronics that applies to automated process and AC/DC servo control circuits. Various feedback control circuits are introduced. Prerequisite ELT 103 and 107. Prerequisite or Corequisite ELT 201.

AMT 102 - INTRODUCTION TO ROBOTICS
3 Credits
This course begins with a discussion of robotic terms and definitions. Robotic arm power systems, geometries, tooling and applications are also discussed. The difference between open-loop and closed-loop feedback controllers is explained. The student is introduced to the concepts of connecting robot controllers to sensors and other cell equipment. The course concludes with an examination of various robot programming languages, safety issues and the human factors of automation. Prerequisites ELT 100/102 or ELT 113 and ELT 104, MAT 104

DCT 103 - CAD FUNDAMENTALS
3 Credits
The purpose of this course is to provide students with an understanding of the features, limitations, and considerations associated with the operation of a computer-aided design (CAD) system. Students will gain valuable hands-on experience using the AutoCAD (micro-based) software. They will be expected to complete several projects (increasing in difficulty) relating to command topics covered on a weekly basis.

ILT 201- INDUSTRIAL INSTRUMENTATION AND TECHNIQUES I
3 Credits
This is a hands-on, intensive lecture/lab course which emphasizes precision measurement via pressure, strain, force, flow, and level gauges. Instruction will cover the related probes, sensors, transducers, computer interfaces (IEEE 488 and RS 232), computer hardware and peripherals, computer software necessary for the acquisition, summarization, analysis, and presentation of data. This course should be followed by Industrial Instrumentation and Techniques 2 (ILT 202). Prerequisites ILT 101, MAT 102, SCI 103 or the approval of the Electronics Program Chairperson.

IMT 104 - FLUID POWER BASICS
3 Credits
This course introduces the student to fluid power, its transmission, and components used in its operation. Topics covered in the course include the reading and interpretation of blueprints and schematics, operation of pumps, use and operation of cylinders, flow control valves, filters, directional control valves, sizing of cylinders, pressure control valves, regulators, oil maintenance, and other related areas. Troubleshooting is introduced. Safety and how it is applied is stressed.

CIS 109 - UNIX V OPERATING SYSTEM
3 Credits
Studies the UNIX V Operating System and its use as a powerful time-sharing operating system. Includes basic UNIX commands, use of the visual editor, the UNIX directory structure and file management with SHELL commands. Offers opportunities to apply skills and knowledge in a laboratory environment. Prerequisite CIS 101 or equivalent.

CIS 212 - "C" PROGRAMMING
3 Credits
This course provides a basic understanding of the fundamental concepts involved when using a low level development language. The emphasis is on logical program decision using a modular approach involving task oriented program functions. The role of data types, storage classes and addressable memory locations is thoroughly discussed. Since C is a language quite unlike anything most students have been exposed to, the philosophy of this course is to provide a sound foundation of fundamental concepts such as the C function and the proper use of pointers. Prerequisite CIS 101 or equivalent.

MANUFACTURING TECHNOLOGY

Specialties:

Automation Systems

CAD/CAM

CNC

Quality Control

Instrumentation

The Automation Systems Specialty: This specialty prepares technicians to design, install, calibrate, program, operate, test, analyze, troubleshoot, service and repair advanced manufacturing, assembly, and materials-handling systems and data computer networks. This is a multi-disciplinary program which utilizes mechanical, electrical, thermal, and fluid technology to shape, form and process raw materials into finished products. Parts are assembled into finished products using sensing, vision, and robotic techniques. Automated modern material handling techniques including conveyors, manless parts vehicles, and storage systems are explored. Computer data communications networks, machine and robot controllers, and cell computers are all integrated into the assembly process.

Coursework includes studies in technical math, physics, written and oral

communications, interpersonal and human relations. Technical study covers electricity, electronics, solid state devices, digital electronics, microprocessor and computer fundamentals, programmable controllers, hydraulics, pneumatics, servo-mechanisms, drives and drive-trains, robots, workcells and flexible manufacturing systems, machine tools, computer-aided drafting/computer-aided manufacturing, computer numerical control, and computer integrated manufacturing.

The two-year program requiring completion of 64 credits leads to the Associate of Applied Science degree.

Computer Aided Drafting/Computer Aided Manufacturing CAD/CAM Specialty: The CAD/CAM Specialty prepares students for employment with companies utilizing CAD and CAM in the design and manufacture of products. The CAD/CAM technician plays an essential role in today's highly integrated and automated manufacturing environment. A CAD/CAM technician may be responsible for initial product design, post-processing geometry to machine code and product manufacturing using the latest in high technology manufacturing equipment. With suitable experience a CAD/CAM technician may advance to supervising a design department within a manufacturing firm.

The two-year program requiring completion of 64 credits leads to the Associate of Applied Science degree.

Computer Numerical Control (CNC) Specialty: The CNC Specialty is designed to serve the needs of students with varying levels of training and experiences. Courses offered provide various stages of development including introductory, refresher, and upgraded levels, to aid individuals in attaining their educational goals. The CNC Technician fabricates parts that, when assembled with other components, comprise the complex machinery used to manufacture a variety of products.

The one-year program requires completion of 36 credits for the Technical Certificate .

Quality Control and Instrumentation: The Industrial Laboratory Specialty provides instruction to prepare students for entry level positions as industrial laboratory technicians with specialties in Electronic Instrumentation and Quality Control. Coursework begins with process control including temperature, pressure, flow, and level systems. Instrumentation is covered from sensors, transducers, and manual procedures through fully automated testing and control. Instrument/computer interfacing is included in all options, quality concerns are considered in all options, but stressed in the Quality Control specialty.

This two- year Associate of Applied Science degree program requires 63 credits. Students are advised to take regional electives.

Manufacturing Technology
Associate of Applied Science Degree
AUTOMATION SYSTEM SPECIALTY

AAS/Technical Courses			**(41 Credits)**
AMT	101	Manufacturing Processes	3
AMT	102	Introduction to Robotics	3
AMT	201	Manufacturing Systems Control	3
AMT	202	Work Cell Design and Integration	3
AMT	205	Automated Manufacturing Systems	3
ELT	100	Circuits I	4
ELT	102	Circuits Lab	2
ELT	103	Digital Principles	4
ELT	104	Computer Fundamentals for Technology	3
ELT	107	Industrial Electronics	4
DCT	103	CAD Fundamentals	3
IMT	104	Fluid Power Basics	3
MTT	208	CNC Programming I	3

AAS/General Education Requirements			**(21 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
MAT	104	Algebra/Trigonometry I	3
MAT	105	Algebra/Trigonometry II	3
SCI	103	Physics I	3
SCI	105	Physics II	3
SOC	101	Human Relations	3

AAS/Regional Courses			**(2 Credits)**
Students should select one course from the following:			
AMT	288.01	Special Topics in Manufacturing	1
AMT	288.02	Special Topics in Manufacturing	2
AMT	288.03	Special Topics in Manufacturing	3
ELT	201	Solid State II	4
ELT	202	Microprocessors	4
ELT	204	Linear Integrated Circuits	3
MTT	108	Metrology	3
MTT	209	CNC Programming II	3
MTT	210	Interactive CNC	3
INF	102	Microcomputer Operating Systems	3
CPT	209	C Language Programming Fundamentals	3

CPT	202	Data Communications	3
DCT	107	Advanced CAD	3
DCT	216	Jig and Fixture Design	3
DCT	218	CAD/CAM Design	3
Total AAS Credits			**64**

Manufacturing Technology
Associate of Applied Science Degree

***CAD/CAM SPECIALTY*(AAS)**			**(18 Credits)**
AMT	101	Manufacturing Processes	3
AMT	102	Introduction to Robotics	3
ELT	113	Basic Electricity	3
DCT	103	CAD Fundamentals	3
IMT	104	Fluid Power Basics	3
MTT	208	CNC Programming I	3

General Education Requirements			**(19 Credits)**
ENG	101	English Composition I	3
MAT	103	Geometry/Trigonometry	3
MAT	104	Algebra/Trigonometry 1	3
SCI	103	Physics I	3
SCI	104	Physics Lab I	1
SOC	101	Human Relations	3
ENG	103	Speech	3

AAS/Regional Courses			**(27 Credits)**
Students should select 27 credits from the following:			
DCT	107	Advanced CAD	3
DCT	218	CAD/CAM Design	3
DCT	288.05	CAD/CAM II	3
MTT	102	Turning Processes I	3
MTT	103	Milling Processes I	3
MTT	104	Machinery Handbook	3
MTT	204	Abrasive Processes I	3
MTT	209	CNC Programming II	3
MTT	210	Interactive CNC	3

Total Credits			**64**

Manufacturing Technology
Technical Certificate

CNC SPECIALTY

(Technical Certificate)			**(30 Credits)**
MTT	102	Turning Processes I	3
MTT	103	Milling Processes I	3
MTT	104	Machinery Handbook I	3
MTT	108	Metrology	3
MTT	204	Abrasive Processes I	3
MTT	208	CNC Programming I	3
MTT	209	CNC Programming II	3
MTT	210	Interactive CNC	3
IMT	102	Introduction to Print Reading	3
IMT	120	Metallurgy Fundamentals	3

General Education Requirements			(6 Credits)
MAT	101	Algebra I	3
MAT	103	Geometry/Trigonometry	3

Total Technical Certificate Credits **36**

Manufacturing Technology
Associate of Applied Science Degree

QUALITY CONTROL SPECIALTY

(Technical Certificate)			**(30 Credits)**
ILT	101	Industrial Lab Techniques	3
ILT	201	Industrial Instrumental Tech. I	3
ILT	202	Industrial Instrumental Tech. I	3
ILT	203	Environmental Monitoring	3
ELT	104	Computer Fundamental/ Technology	3
IST	101	Quality Control Concepts/Techniques	3
IST	102	Techniques of Supervision	3
MAT	108	Statistics	3
SCI	103	Physics I	3
SCI	105	Physics II	3

General Education Requirements			**(21 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
ENG	201	Technical Writing	3
MAT	101	Algebra I	3
OR			
MAT	104	Algebra/Trigonometry I	3
SCI	107	Chemistry	3
SCI	111	Microbiology	3
SOC	101	Human Relations	3

Regional Electives			**(9 Credits)**
SPC	101	Statistical Process Control	3
SPC	108	QC Engineering Principles/Techniques	3
SPC	111	Reliability Objectives	3

Student should select three credit hours from the following:

MAT	102	Algebra II	3
MAT	105	Algebra/Trigonometry II	3

Total ASS Degree Credits **63**

Manufacturing Technology
Associate of Applied Science Degree

ELECTRONIC INSTRUMENTATION SPECIALTY

(Technical Certificate)			**(30 Credits)**
ILT	101	Industrial Lab Techniques	3
ILT	201	Industrial Instrumental Tech. I	3
ILT	202	Industrial Instrumental Tech. I	3
ILT	203	Environmental Monitoring	3
ELT	104	Computer Fundamental/ Technology	3
IST	101	Quality Control Concepts/Techniques	3
IST	102	Techniques of Supervision	3
MAT	108	Statistics	3
SCI	103	Physics I	3
SCI	105	Physics II	3

General Education Requirements			**(21 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
ENG	201	Technical Writing	3
MAT	101	Algebra I	3
OR			
MAT	104	Algebra/Trigonometry I	3
SCI	107	Chemistry	3
SCI	111	Microbiology	3
SOC	101	Human Relations	3

Regional Electives			**(9 Credits)**
AMT	101	Manufacturing Processes	3
ILT	288	Auto Testing	3
MTT	108	Metrology	3

Student should select three credit hours from the following:

MAT	102	Algebra II	3
MAT	105	Algebra/Trigonometry II	3

Total AAS Degree Credits **63**

COURSE DESCRIPTIONS

AMT 101 - MANUFACTURING PROCESSES
3 Credits
This course provides the student with the ability to understand the manufacturing processes that develop useful products from raw materials. Types of materials, materials testing, heat treating, shaping, finishing and assembling of materials are included. Specifications and quality control testing are also discussed. Emphasis is placed on the manufacturing organization and manufacturing jobs, including engineers, technicians, artisans, managers, staff and their relationship to efficient production.

AMT 102 - INTRODUCTION TO ROBOTICS
3 Credits
This course begins with a discussion of robotic terms and definitions. Robotic arm power systems, geometries, tooling and applications are also discussed. The difference between open-loop and closed-loop feedback controllers is explained. The student is introduced to the concepts of connecting robot controllers to sensors and other cell equipment. The course concludes with an examination of various robot programming languages, safety issues and the human factors of automation. Prerequisites ELT 100/102 or ELT 113 and ELT 104, MAT 104

AMT 201- MANUFACTURING SYSTEMS CONTROL
3 Credits
This course begins with a discussion of electromechanical ladder logic. Construction and operation of basic control components such as relays and pilot devices are covered. Ladder logic symbology and basic design principles are also presented. Solid state digital gates as substitutes for electromechanical devices are also discussed. Programmable logic controllers (PLCs) are the final topic and constitute the majority of the course content. Prerequisites ELT 100/102 or ELT 113 and ELT 104, MAT 101.

AMT 202 - WORKCELL DESIGN AND INTEGRATION
3 Credits
First introduced is a discussion of the workcell concepts. Types of workcell communication and architecture are covered. Design, start-up and troubleshooting of workcells are a major portion of this class. Students spend considerable laboratory time designing and starting automated workcells as projects. Prerequisites AMT 102, AMT 201, DCT 103, and ELT 103.

AMT 205 - AUTOMATED MANUFACTURING SYSTEMS
3 Credits
This course is the "capstone" course of the Automated Manufacturing Technology program. The focus is on computer integrated manufacturing (CIM). The course begins with a discussion of integration technologies and strategies used to integrate individual workcells into a manufacturing shop floor system. The roles of additional functions (business, engineering, etc.) as well as integration strategies for these functions are covered. The course concludes with an overview of human factors and implementation considerations for a CIM system. Prerequisite AMT 202.

AMT 288 - SPECIAL TOPICS IN MANUFACTURING
3 Credits
These courses will explore various advanced topics in manufacturing automation. Potential topics include advanced robotics, progammable controllers, machine vision, systems, integration, etc. Prerequisites include AMT 102, 201 and 202.

MTT 102 - TURNING PROCESSES 1
3 Credits
Turning processes I is structured to inform the student of shop safety, shop terminology, shop tools and machine tooling, measurement and layout practices, and applied practicum to begin a project. Through a series of lectures, demonstrations, and practicums, students will gain manipulative skills to complete a project on the conventional lathe. Prerequisite BSA 051 or equivalent.

MTT 103 - MILLING PROCESSES I
3 Credits
Structured to apply a hands-on application to complete a project using the mill with benchwork and layout procedures, as well as technical terminology and mathematical applications. The course gives the student a comprehensive introduction to basic machining operations and theory. Mill, drill and saw operations are completed by the student at the technical level of a tool and die apprentice.

MTT 104 - MACHINERY HANDBOOK
3 Credits
This course explores the intent and use of the Machinery Handbook. Applies principles and concepts in the Machinery Handbook to solve problems found in the industry. Introduced are effective methods of using any reference volume. This skill provides some substitute for the years of experience that aid the skilled craftsman. Prerequisites MTT 102, MTT 103, or its equivalent.

MTT 108 - METROLOGY
3 Credits
Techniques of linear and angular measurement and applications in machine tool production and quality control. This course covers the field of precision instruments, tools and gauges used in layout and inspection work. The importance of quality control is also stressed.

MTT 204 - ABRASIVE PROCESSES I
3 Credits
In this course, the student is introduced to surface grinding theory and practice. Skills presented in this course are surface grinding, cylindrical grinding, slot and contour grinding. This course builds upon previously acquired skills of machine precision finishes and tolerances. Various types of grinding machines are covered in keeping with the aim of the course toward precision. Prerequisite MTT 102, MTT 103 or equivalent.

MTT 208 - CNC PROGRAMMING I
3 Credits
Serves to introduce the student to the programming methodology involved with a three-axis milling machine. Areas to be covered include linear, angular, and circular interpolation programming, cutter compensation methods, NC codes, and operation of machines and related equipment. Emphasizes proper programming formats. Prerequisite MTT 102, MTT 103, IMT 102 or equivalent.

MTT 209 - CNC PROGRAMMING II
3 Credits
This course introduces computer-assisted numerical control programming as it relates to automated turning centers. Emphasizes proper programming techniques, control familiarity, data, and machining functions. Prerequisite MTT 208, IMT 102, MTT 102, MTT 103 or equivalent.

MTT 210 - INTERACTIVE CNC
3 Credits
In this course the student experiences hands-on programming challenges where he processes, programs and machines a workpiece using a CNC vertical milling machine utilizing: 1) Hurco conversational English programming; 2) cutter compensation; 3) circles, frames, ellipses; 4) patterns; and 5) 3-D programming.

DCT 103 - CAD FUNDAMENTALS
3 Credits
The purpose of this course is to provide students with an understanding of the features, limitations, and considerations associated with the operation of a computer-aided design (CAD) system. Students will gain valuable hands-on experience using the AutoCAD (micro-based) software. They will be expected to complete several projects (increasing in difficulty) relating to command topics covered on a weekly basis.

ELT 100 - CIRCUITS I
4 Credits
A study of electrical principles and laws pertaining to DC circuits. The relationship of passive components when used in simple and complex circuits are analyzed. Ohm's law, Kirchhoff's laws, ammeters, voltmeters, ohmmeters, capacitance and power are discussed. Magnetism, magnetic induction, inductance and AC principles are introduced. Prerequisite BSA 051; Co-requisite ELT 102; Prerequisite or co-requisite MAT 104.

ELT 102 - ELECTRONIC CIRCUITS LAB
2 Credits
This course allows hands-on laboratory experience in the understanding of principles taught in ELT 100. Use of basic hand tools and test equipment such as voltmeters, ammeters, ohmmeters and impedance bridges are taught. Student will receive training in troubleshooting skills, safety and care of equipment. Fabrication and soldering techniques are discussed and practiced, culminating with a project fabricated and tested by the student. Prerequisite BSA 051; Co-requisite ELT 100; Prerequisite or co-requisite MAT 104.

ELT 103 - DIGITAL PRINCIPLES
4 Credits
Introduces digital electronics including logic gates and combinational logic circuits. Binary arithmetic, Boolean algebra, mapping, digital encoders and decoders, multiplexers and demultiplexers, and arithmetic circuits are also studied. SSI and MSI digital integrated circuits are used in this course. Prerequisite BSA 051.

ELT 104 - COMPUTER FUNDAMENTALS FOR TECHNOLOGY
3 Credits
Provides an introduction to microcomputer hardware, applications and software. Emphasis is placed on computer literacy, disk operating systems (DOS), and computer programming. Commonly used microcomputer applications are surveyed. Prerequisite BSA 051.

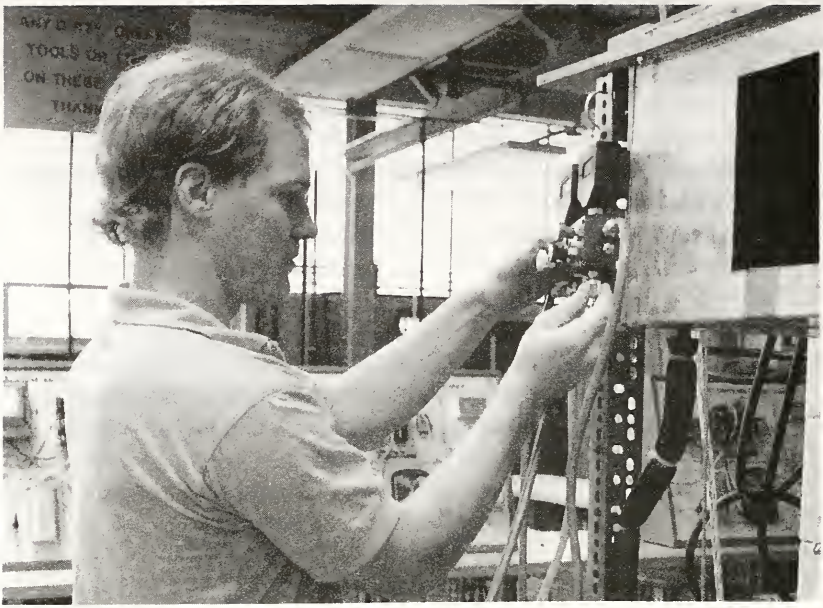
ELT 107 - INDUSTRIAL ELECTRONICS
4 Credits
An overview of electronics applied in the industrial setting. Introduction to various applications of the industrial system and how electronics are applied to these systems. Introduces power machines, polyphase systems, transducers, power transformers, SCRs and other thyristors. Prerequisite ELT 103 and 105 . ELT 201 is recommended as a pre-or corequisite course, but not required.

ELT 201- SOLID STATE II
4 Credits
A study of the applications of special-purpose diodes, thyristors and unipolar transistors. Frequency effects and response of amplifiers are discussed. Includes discreet, FETs, UJTs, oscillators, regulated power supplies and switching regulators. Prerequisite ELT 105.

ELT 202 - MICROPROCESSORS
4 Credits
Introduction to microprocessor system organization, operation, design, troubleshooting and programming. A microprocessor instruction set is investigated and analyzed for its operation. Laboratory experience includes building and programming a simple computer and working with microprocessor trainers. Prerequisites ELT 104 and 106.

ELT 204 - LINEAR INTEGRATED CIRCUITS
3 Credits
Introduction to Operational Amplifiers (Op Amps) characteristics and operations. Covers filters, inverting and noninverting amplifiers, differential amplifiers, linear regulators, switching regulators, voltage comparators, electronic timers, and multivibrators. Prerequisite ELT 105; pre- or co-requisite ELT 201.

IMT 104 - FLUID POWER BASICS
3 Credits
This course introduces the student to fluid power, its transmission, and components used in its operation. Topics covered in the course include the reading and interpretation of blueprints and schematics, operation of pumps, use and operation of cylinders, flow control valves, filters, directional control valves, sizing of cylinders, pressure control valves, regulators, oil maintenance, and other related areas. Troubleshooting is introduced. Safety and how it is applied is stressed.



MECHANICAL SERVICES TECHNOLOGY

Specialties:

Heating/ AirConditioning/ and Refrigeration

Industrial Maintenance

Welding

Electrical Apprenticeship (offered to graduates of the Indianapolis Electrical Joint Apprenticeship and Training Committee)

Within the Mechanical Technology Program, an AAS Degree is available in Heating and Air Conditioning and in Industrial Maintenance. Within Industrial Maintenance the option of a specialty in Electrical or Facilities is offered. A Technical Certificate is available in Heating, Air Conditioning and Refrigeration, Industrial Maintenance and in Welding Technology. The Electrical Apprenticeship AAS Degree is also available.

Heating/Air Conditioning and Refrigeration: The Heating, Air Conditioning and Refrigeration Technology specialty is designed to offer students the preparation for initial employment in this field. The program also offers the Professional Air Conditioning Technician Training (PACTT) program which is a cooperative education agreement with contractors.

PACTT is a program consisting of academic instruction with lab experiences provided by Ivy Tech and a cooperative work experience with members of the ACCA Chapter of Indianapolis. A student must be sponsored by a contractor with membership in the ACCA Chapter.

Heating, air conditioning and refrigeration technicians may work in service, installation, design, sales, or estimation areas. Entry level positions may be found with HVAC contractors in factories, hospitals, theaters, restaurants, office buildings, government agencies, service firms or through self-employment.

A two-year program requires 64 credits and leads to the Associate of Applied Science degree. A one -year program requires 33 credits and leads to a Technical Certificate.

Industrial Maintenance: The two-year Industrial Maintenance Technology speciality requires 64 semester hours for completion and leads to an Associate of Applied Science degree. The program provides instruction in advanced technologies for individuals seeking employment as technicians who are involved in maintaining industrial facilities and equipment. Competencies necessary for industrial maintenance technicians include installation, maintenance and troubleshooting of electrical, mechanical and fluid power systems; basic heating, air conditioning and welding techniques; technical interpretation; automated systems application; safety; and communications, interpersonal relations, math, science and computer skills.

Industrial maintenance technicians work in a variety of industrial and business settings including manufacturing, production, building management, hotels, hospitals, apartment complexes, and other service-oriented industries. Students specialize in such areas as electrical, mechanical, facilities, and welding.

Welding: Job opportunities are expected to be quite good for welders in the future. Opportunities for welders exist with power plants, pipelines, fabrication and building trades, welding service shops, utility companies and manufacturing firms. The successful Ivy Tech student will be interested in positions such as welder, flame cutter, inspector, braiser, spot welder, and fabricator.

The welding specialty at Ivy Tech is designed to provide students with the skills necessary for that first job or for upward mobility.

Students who complete the Technical Certificate are eligible to apply for certification which is recognized by the American Welding Society.

Electrical Apprenticeship: Indianapolis Electrical Joint Apprenticeship and Training Committee (JATC) graduates now have the opportunity to earn an Associate Degree of Applied Science (AAS) degree at Ivy Tech. A graduate can earn an AAS in industrial service in two semesters or an AAS degree in electronics in three semesters. For additional information call 921-4800.

Heating/Air Conditioning/Refrigeration Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(33 Credits)**
***Technical Certificate**			***(24 Credits)**
*HEA	101	Heating Fundamentals	3
*HEA	103	Air Condition and Refrigeration I	3
*HEA	104	Heating Service	3
*HEA	106	Air Condition and Refrigeration II	3
*HEA	107	Duct Fabrication and Installation	3
*HEA	201	Cooling Service	3
*HEA	202	Electrical Circuits and Controls	3
HEA	203	Heat Loss and Gain	3
*HEA	205	Heat Pump	3
HEA	206	Advanced Cooling Service	3
HEA	207	HVAC Codes	3

AAS/Related Education			***(6 Credits)**
*ELT	113	Basic Electricity	3
*IMT	103	Motors and Motor Controls	3

AAS/General Education Courses			**(20 Credits)**
***Technical Certificate**			***(3 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
MAT	100	Math Essentials	4
SCI	101	Physical Science	3
SCI	102	Physical Science Lab	1
SOC	101	Human Relations	3

Select three credits from the following:
SOC 106 OR SOC 107 3

AAS/Regional Courses **(5 Credits)**
Select five from the following:
HEA 204, HEA 208, HEA 209; HEA 210, HEA 211, HEA 212, HEA 213,
HEA 214,ELT 104.

Total AAS Credits	64
***Total Technical Certificate Credits**	*33

Industrial Maintenance Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(36 Credits)**
IMT	102	Introduction to Print Reading	3
IMT	103	Motors and Motor Controls	3
IMT	104	Fluid Power Basics	3
IMT	105	Heating and Air Conditioning Basics	3
IMT	201	Fluid Power Systems	3
IMT	202	Electrical Circuits	3
IMT	203	Machine Maintenance/Installation	3
IMT	205	Programmable Controllers I	3
AMT	102	Introduction to Robotics	3
ELT	113	Basic Electricity	3
MTT	101	Introduction to Machining	3
WLD	114	Introductory Welding	3

AAS/General Education Courses			**(19 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
MAT	101	Algebra I	3
MAT	102	Algebra II	3
SOC	101	Human Relations	3
SCI	103	Physics I	3
SCI	104	Physics I Lab	1

Related Education			**(3 Credits)**
ELT	104	Computer Fundamentals for Technology	3

AAS/Regional Courses **(6 Credits)**

Electrical Specialty: Students should select six credits from the following:

BCT	201	Residential Wiring	3
IMT	122	Electrical Wiring Fundamentals	3
IMT	288.01	Electrial Control of Fluid Power	3
IMT	288.05	Applications of the NEC Code Book	3
IMT	288.06	Machine Diagnosis and Repair Electrical	3

Facilities Speciality: Students should select six credits from the following:

BCT	201	Residential Wiring	3
BCT	202	Plumbing Fundamentals	3
BCT	203	Masonry Concrete Fundamentals	3
BCT	207	Carpentry-Light Commercial	3
BCT	214	Wall and Floor Coverings	3

Mechanical Specialty: Students should select six credits from the following:

IMT	288.01	Electrical Control of Fluid Power	3
IMT	288.02	Preventive Maintenance	3
IMT	288.07	Pumps	3
IMT	288.08	Millwright I	3
IMT	120	Metallurgy Fundamentals	3

Total AAS Credits **64**

Welding Technology
Technical Certificate

Technical Core Courses			(33 Credits)
WLD	108	Shielded Metal Arc Welding I	3
WLD	109	Oxy-Acetylene Gas Welding & Cutting	3
WLD	110	Welding Fabrication	3
WLD	201	Special Welding Processes	3
WLD	203	Pipe Welding I	3
WLD	206	Shielded Metal Arc Welding II	3
WLD	207	Gas Metal Arc Welding	3
WLD	208	Gas Tungsten Arc Welding	3
WLD	209	Welding Certification	3
IMT	102	Introduction to Print Reading	3
IMT	120	Metallurgy Fundamentals	3

General Education Requirements			**(3 Credits)**
MAT	150	Technical Math	3

Total Technical Certificate Credits **36**

Electrical Apprenticeship
Associate of Applied Science Degree

AAS/Technical Core Courses			**(15 Credits)**
IMT	104	Fluid Power Basics	3
IMT	201	Fluid Power Systems	3
IMT	203	Machine Maintenance/Installation	3
AMT	102	Introduction to Robotics	3
MTT	101	Introduction to Machining	3

AAS/General Education Courses			**(13 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
SOC	101	Human Relations	3
SCI	103	Physics I	3
SCI	104	Physics I Lab	1

Related Education			**(3 Credits)**
ELT	104	Computer Fundamentals for Technology	3

Transfer Credit
Apprenticeship Training **(33 Credits)**

Total AAS Credits **64**

COURSE DESCRIPTIONS (Heating/Air Conditioning)

ELT 104 - COMPUTER FUNDAMENTALS FOR TECHNOLOGY
3 Credits
Provides an introduction to microcomputer hardware, applications and software. Emphasis is placed on computer literacy, disk operating systems (DOS), and computer programming. Commonly used microcomputer applications are surveyed. Prerequisite BSA 051.

ELT 113 - BASIC ELECTRICITY
3 Credits
Study of electrical laws and principles pertaining to DC and AC circuits. Includes current, voltage, resistance, power, inductance, capacitance, and transformers. An understanding of basic mathematical relationships and working with formulas is required.

HEA 101-HEATING FUNDAMENTALS
3 Credits
Fundamentals applicable to the heating phase of air conditioning. Includes types of units, parts, basic controls, functions, and applications. Emphasizes practices, tools and meter uses, temperature measurement, heat flow, and the combustion process. Fundamentals of installation are included.

HEA 103-AIR CONDITIONING AND REFRIGERATION I
3 Credits
Introduction to compression systems used in mechanical refrigeration and air conditioning. Includes the refrigeration cycle, compressors, receivers, evaporators, condensers, metering devices, refrigerants, temperature conversions, absolute temperatures and gas laws. Introduction to soldering, brazing and oxy-acetylene gas welding apparatus and basic mechanical procedures used in industry.

HEA 104-HEATING SERVICE
3 Credits
Covers procedures used to analyze mechanical and electrical problems encountered when servicing residential heating systems, including gas, oil, electric and hydronic heating equipment. Electrical schematics and diagrams, combustion testing, venting and combustion air requirements, installation and service procedures are considered.

HEA 106-AIR CONDITIONING AND REFRIGERATION II
3 Credits
This course provides a detailed study of mechanical refrigeration and air conditioning system components, such as compressors, condensers, receivers, accumulators, metering devices, evaporators, filters, driers and other system components. This includes continuation of basic mechanical system analysis, the cause and effect relationship of component operation and cooling effect. The essential criteria for system diagnosis is established.

HEA 107-DUCT FABRICATION AND INSTALLATION
3 Credits
This course provides practice in the reading of construction blueprints, the layout of duct work and duct fittings. The student will practice drawing working layouts and fabricating sheet metal fittings from layouts. Emphasis is placed on safety and safety equipment, as well as the proper use of sheet metal tools and shop equipment.

HEA 201-COOLING SERVICE
3 Credits
This course encompasses service procedures for residential air conditioning and refrigeration systems. This includes low voltage controls (24 volts) and line voltage controls, such as defrost timers, defrost heaters, relays and cold controls. Emphasis is placed on schematic and pictorial wiring diagrams. Testing, evaluation and analysis of space cooling equipment problems are included.

HEA 202-ELECTRIC CIRCUITS AND CONTROLS
3 Credits
The student will study various controls as they pertain to the industry. Controls included are gas, oil, and electric heat, temperature controllers, humidistats, aquastats and cooling controls. The student will learn how these controls are integrated into complex control systems by reading and drawing schematic and pictorial wiring diagrams. Component testing and troubleshooting will also be presented..

HEA 203-HEAT LOSS AND GAIN CALCULATION
3 Credits
This course develops the industry standard methods used in calculating heat loss and gain in the sizing units for residential and light commercial applications. Includes methods used to reduce energy consumption. Some aspects of blueprint reading, use of the architect scale, and ACCA manuals are involved.

HEA 204-COMMERCIAL REFRIGERATION
3 Credits
Examines air conditioning and refrigeration systems for commercial use, including medium and low temperature applications. Includes refrigeration accessories, metering devices and advance control arrangements.

HEA 205-HEAT PUMP SYSTEMS SERVICE
3 Credits
This course is designed to provide an understanding of the different types of heat pumps available for use today. The student will become familiar with the refrigeration cycle as it applies to the heat pump system. The student will be expected to draw, trace, and follow an electrical schematic of a heat pump. A demonstration of how to charge a heat pump with refrigerant will be given. The student will learn how to select the proper heat pump. The student will learn the mechanical components and how to troubleshoot them. Each student will be given the opportunity to troubleshoot a non-functioning heat pump.

HEA 206-ADVANCED COOLING SERVICE
3 Credits
This course expands the techniques of system analysis and troubleshooting covered in HEA 201, Cooling Service,, to include larger and more complex systems used in commercial and industrial installations. It examines chillers, volume control systems, cooling towers and a wide variety of piping and control systems which the service technician might encounter.

HEA 207-HVAC CODES
3 Credits
This course is a study of the current National, State and Local Codes of Standard Professional Workmanship applicable to the Heating, Air Conditioning and Refrigeration and Ventilation industry. Specifically, these studies include the Uniform Mechanical Code, the National Electrical Code, the Venting Code, and Gas Piping Codes, as they apply to Safety, Quality of Workmanship and Enforcement Authority. The means by which codes are changed and adopted for local enforcements is also discussed.

HEA 208-ENERGY MANAGEMENT AND BALANCING
3 Credits
Deals with reduction in energy usage in a facility, operational and maintenance improvements, new building design standards, shut down and consolidation, alternate energy resources, retrofitting existing buildings and energy awareness. Includes practice in adjusting and setting fan speeds, dampers and other air regulating and distribution devices.

HEA 209-PSYCHROMETRICS
3 Credits
A study of the properties of air and the process changes involved in conditioning the air: heating, cooling, humidifying and dehumidifying. The design of systems for residential, commercial and industrial operations is evaluated. Matching air handling and conditioning equipment with the process requirements is studied. The second half of the course is devoted to the study of air distribution and duct system design. The ACCA "T" and "D" manuals are used, but other design methods, such as constant pressure and static regain, are considered. Prerequisites HEA 101, HEA 103, and MAT 101.

HEA 210-ALTERNATIVE ENERGY FUNDAMENTALS
3 Credits
This course examines a variety of energy sources and methods available for space heating and cooling, as well as refrigeration. Sources other than conventional mechanical conversion include solar air and water systems, adiabatic saturation systems, and geothermal systems. The application of these systems as auxiliary or primary systems in conjunction with fossil fuel or mechanical systems is also evaluated. Prerequisite Program Chair approval.

HEA 211-ABSORPTION SYSTEMS
3 Credits
Surveys special cooling systems with emphasis on the absorption cycle. Includes ammonia-water and lithium-bromide cycles, types of units, arrangements, parts, function of various parts and applications of units into air conditioning systems, in addition to diagnosis of service problems. Prerequisites HEA 206 and HEA 212.

HEA 212-ADVANCED HVAC CONTROLS
3 Credits
Course material covers control systems beyond ordinary residential and single zone systems. Includes zoning controls, modulating controls, low ambient controls, economizer controls, pneumatic controls and energy management controls. Solid state controls are also studied. Prerequisites HEA 101, HEA 106, HEA 201, and HEA 202.

HEA 213-ESTIMATING, MANAGEMENT AND SALES
3 Credits
This course involves the use of blueprints, specifications, AIA documents, application data sheets, bid forms and contracts, in estimating and quoting materials and labor in the HVAC business. Also included: advertising, direct labor, overhead, mark-up, shrinkage, taxes, permits, subcontracts, margins and profit. Complete installation jobs and service contracts will be estimated. The service organization, service procedures, record

keeping, parts inventory control, insurance and liability will be covered. Prerequisite Program Chair approval.

HEA 214-APPLIED DESIGN

3 Credits

Students will integrate and use knowledge previously gained to design and lay out a complete HVAC drafting for the purpose of drawing and interpreting a drawing for practical use - the layout of the paper, how to proceed with scale drawings, read scales, symbols and apply them, duct design, and supply and returns placement and drawing, and sectional systems drawings, until a final drawing is made showing the structure and system incorporated in one. Prerequisite Program Chair approval.

BCT 201 - RESIDENTIAL WIRING

3 Credits

This course covers the practices of residential wiring as applied to the single family dwelling and general light commercial applications. Also included in the course are the study and general applications of electrical service, metering equipment, lighting, switches, outlets, and other commonly used components. The instructor will introduce the student to methods of installation and maintenance of these wiring systems. The student will also be introduced to the National Electrical Code, and how it is to be applied. Prerequisites MAT 104, ELT 113.

COURSE DESCRIPTIONS (Industrial Maintenance)

IMT 102 - INTRODUCTION TO PRINT READING
3 Credits
A basic course in reading and interpreting machine shop symbols, welding blueprints, and other working drawings used in trades and crafts. Attention is given to dimension, shape, fabrication and assembly. Applies basic mathematics in the solution of print and performance problems.

IMT 103 - MOTORS & MOTOR CONTROLS
3 Credits
This course is designed to give each student a working knowledge of all basic electric motors, extending from the small, shaded pole fan motors to the large three phase motors . The student will receive instruction in motor theory magnetism and how it affects motor rotation. Motor starting components and protective devices for motor circuits will be explained and shown in detail. Heat dissipation from a motor, motor slippage and how frequency affects a motor will be discussed. Multi-speed motors and how they are wired to obtain different speeds, and capacitors and how they affect a motor circuit will be included. Prerequisite ELT 113.

IMT 104 - FLUID POWER BASICS
3 Credits
This course introduces the student to fluid power, its transmission, and components used in its operation. Topics covered in the course include the reading and interpretation of blueprints and schematics, operation of pumps, use and operation of cylinders, flow control valves, filters, directional control valves, sizing of cylinders, pressure control valves, regulators, oil maintenance, and other related areas. Troubleshooting is introduced. Safety and how it is applied is stressed.

IMT 105 - HEATING AND AIR CONDITIONING BASICS
3 Credits
Studies the fundamentals of heating systems and compression systems used in mechanical refrigeration and air conditioning. Attention is given to combustion processes, heat flow, temperature measurement, and gas laws. Covers heating and rerigeration cycles and components used in common systems. Introduces basic mechanical principles and procedures used throughout the industry.

IMT 120 - METALLURGY FUNDAMENTALS
3 Credits
Recommend WLD or MTT background. This course studies the fundamentals of thermodynamics and reactions occurring in metals subjected to various kinds of heat treatment. Includes chemical and physical metallurgy; theory of alloys; heat treatment principles as applied to ferrous and non-ferrous materials, tests to determine uses; heat treatment for steels, special steels, and cast iron; powder metallurgy; and use of gas and electric furnaces and their applications.

IMT 121- INDUSTRIAL SAFETY
3 Credits
Introduction to Occupational Safety and Health standards and codes with emphasis on applications of codes to typical work situations. Includes emergency first aid, safety protection, eye protection, chemical handling. Covers employer and employee rights, as well as violations, citations, penalties, variances, appeals, and record keeping.

IMT 122 - ELECTRICAL WIRING FUNDAMENTALS
3 Credits
This course is designed to instruct a student who possesses a knowledge of electricity in the installation and selection of electrical conductors, cables, switches, and outlets, etc., in new and existing facilities. Increased knowledge of single and three phase circuits and installation of equipment designed for commercial and industrial use is also a major part of this course. Prerequisite ELT 113 and BCT 201.

IMT 201 - FLUID POWER SYSTEMS
3 Credits
This course introduces the student to complex fluid power circuits. The student will learn to design, analyze, and troubleshoot complex circuits using schematic diagrams. This course studies detailed construction of typical industrial fluid power components. Students will disassemble and repair fluid power components in the lab. Prerequisite IMT 104.

IMT 202 - ELECTRICAL CIRCUITS
3 Credits
Fundamentals of single- and three-phase alternating current, including parallel circuits, resistance, inductance, switching, fusing, current requirements, transformer applications and motor control. Also, basics of mechanical and electrical installations emphasizing tool use and material selection. Includes electrical troubleshooting diagnosis and repair. Prerequisite ELT 113, IMT 103.

IMT 203 - MACHINE MAINTENANCE/INSTALLATION
3 Credits
Examines procedures for the removal, repair and installation of machine components. Methods of installation, lubrication practices, and maintenance procedures for industrial machinery are analyzed. Also presented are techniques for calibration and repair of electro-mechanical devices, and practice in computations pertaining to industrial machinery.

IMT 205 - PROGRAMMABLE CONTROLLERS I
3 Credits
Introduces the basic theory, operation, and programming of programmable controllers . It includes pilot control devices, circuit layouts, industrial schematics, relay logic, reduced voltage starters and multi-speed controllers. Static control systems will be covered. The programmable controller (Allen Bradley) will be demonstrated with programming examples, setup examples, and troubleshooting, as well as PLC timing, counting, arithmetic and logic. Prerequisite ELT 113, ELT 104, IMT 103, and IMT 202.

IMT 288.01 - 288.09 - SPECIAL TOPICS IN INDUSTRIAL MAINTENANCE TECHNOLOGY
1-5 Credits
A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area. Requires Program Chair approval and adherence to prerequisites.

BCT 201 - RESIDENTIAL WIRING
3 Credits
This course covers the practices of residential wiring as applied to the single family dwelling and general light commercial applications. Also included in the course are the study and general applications of electrical service, metering equipment, lighting, switches, outlets, and other commonly used components. The instructor will introduce the student to methods of installation and maintenance of these wiring systems. The student will also be introduced to the National Electrical Code, and how it is to be applied. Prerequisites MAT 104, ELT 113.

BCT 202 - PLUMBING FUNDAMENTALS
3 Credits
This course studies the operation and function of home plumbing systems. Included are pipe drawings, isometric pipe layouts, and blueprint symbols. Also included is roughing in plumbing, installing drainage, water systems, fixtures, and water heaters in compliance with the plumbing codes. Tools, their use and material specifications are also covered.

BCT 203 - MASONRY AND CONCRETE FUNDAMENTALS
3 Credits
This course covers the methods and materials of construction with concrete block, brick and forming for poured concrete. Study includes preparation of the building site, and specification of materials.

AMT 102 - INTRODUCTION TO ROBOTICS
3 Credits
This course begins with a discussion of robotic terms and definitions. Robotic arm power systems, geometries, tooling and applications are also discussed. The difference between open-loop and closed-loop feedback controllers is explained. The student is introduced to the concepts of connecting robot controllers to sensors and other cell equipment. The course concludes with an examination of various robot programming languages, safety issues and the human factors of automation. Prerequisites ELT 100/102 or ELT 113 and ELT 104, MAT 104

ELT 104 - COMPUTER FUNDAMENTALS FOR TECHNOLOGY
3 Credits
Provides an introduction to microcomputer hardware, applications and software. Emphasis is placed on computer literacy, disk operating systems (DOS), and computer programming. Commonly used microcomputer applications are surveyed. Prerequisite BSA 051.

ELT 113 - BASIC ELECTRICITY
3 Credits
Study of electrical laws and principles pertaining to DC and AC circuits. Includes current, voltage, resistance, power, inductance, capacitance, and transformers. An understanding of basic mathematical relationships and working with formulas is required.

COURSE DESCRIPTIONS (Welding)

WLD 108 - SHIELDED METAL ARC WELDING I

3 Credits

This course provides the student with a technical understanding of arc welding fundamentals, welding safety, electric power sources, electrode classification and selection. It also includes training to develop the manual skills necessary to make high quality shielded metal arc welds in three positions on mild steel.

WLD 109 - OXY-ACETYLENE GAS WELDING AND CUTTING

3 Credits

In this course the student is provided with a thorough understanding of oxyacetylene welding, flame cutting, brazing fundamentals and welding safety. Training to develop the manual skills necessary to produce high quality welding and cutting techniques is included.

WLD 110—WELDING FABRICATION

3 Credits

Basic fabrication covers interpreting blueprints and welding symbols, principles of layout and measurement used in fabrication of metal products, including tolerances, fits and allowances. Prerequisites WLD 108, WLD 109, WLD 206, WLD 208, and IMT 1 02.

WLD 114- INTRODUCTORY WELDING

3 Credits

This welding course is designed to provide basic skills and fundamental knowledge in oxyacetylene welding and shielded metal arc welding. It is designed for maintenance welders, auto service and auto body technicians, and individuals in the mining industry. It is also an introduction to welding for welding technicians. A major share of the course time is devoted to actual welding practices, including a detailed study of the techniques in making welds in all positions. Instruction is given in brazing and flame cutting. Lecture and discussion provide additional background information. Also covered are electrode selection and their uses. Safety hazards and safe practices in oxyacetylene welding, cutting, and shielded metal arc are emphasized.

WLD 201—SPECIAL WELDING PROCESSES

3 Credits

This course provides advanced practices in Gas Tungsten Arc Welding. The student practices on welding difficult joints and thickness of metals.

1. Introduction to Advanced Tig Welding
2. Safety
3. Preparation for Welding

Prerequisite WLD 108.

WLD 203 - PIPE WELDING I
3 Credits
This course provides training to develop welding skills necessary to make quality welds on open root mild steel pipe in the 5G position. The course will concentrate on preparing the student for the A.S.M.E. Certification test.

1. Introduction to uphill pipe welding.
2. How to read and apply pipe welding procedures.
3. Weld quality.
4. Preheat and interpass.
5. Methods of applying the root pass.
6. Introduction to downhill pipe welding.

Prerequisites WLD 108, WLD 109, and WLD 206.

WLD 206 - SHIELDED METAL ARC WELDING II
3 Credits
This course provides training to develop the manual skills necessary to produce quality multi-pass fillet and groove welds with backing in all positions. This course is designed using the E-6010 and E-7018 electrodes to weld on thick carbon steel plate similar to many structural applications. Prerequisite WLD 108.

WLD 207 - GAS METAL ARC (MIG) WELDING
3 Credits
This course is designed to provide the student with a thorough technical understanding of welding safety, gas metal arc fundamentals, gas metal arc equipment adjustment, metal transfer and shielding gases. It also provides training to develop the manual skill necessary to make quality gas metal arc welds in all positions on mild steel.

1. Introduction to gas metal arc welding.
2. Safety and health of welders.
3. Installation and maintenance of equipment.
4. Setup, operation and shutdown procedures.
5. The quality of welds.
6. Metal transfer and shielding gas welding in all positions will be stressed.

WLD 208 - GAS TUNGSTEN ARC (TIG) (HELI-ARC) WELDING
3 Credits
This course provides the student with a thorough technical understanding of gas tungsten arc welding fundamentals, arc characteristics and welding safety. It provides training to develop the manual skill necessary to make quality gas tungsten arc welds in all positions on mild steel, stainless steel and aluminum.

1. Introduction to gas tungsten arc welding.

2. Safety and health of welders.
3. Preparation for welding, start-up, equipment adjustment, and shutdown.
4. The welding characteristics of carbon steel.
5. Introduction to gas tungsten arc welding using pulsed current.
6. The welding characteristics of stainless steel.
7. Equipment adjustment and their effect on the welding arc.
8. Welding characteristics of aluminum.

WLD 209 - WELDING CERTIFICATION

3 Credits

This course is designed for the student who has advanced shielded metal-arc welding skills. The course will concentrate on preparing the student for the A.W.S. Certification Test. The lecture will cover certification procedures and qualification, destructive and non-destructive testing methods. Also, a review of welding safety will be covered. Prerequisites WLD 108, WLD 109, and WLD 206.

IMT 102 - INTRODUCTION TO PRINT READING

3 Credits

A basic course in reading and interpreting machine shop symbols, welding blueprints, and other working drawings used in trades and crafts. Attention is given to dimension, shape, fabrication and assembly. Applies basic mathematics in the solution of print and performance problems.

IMT 120 - METALLURGY FUNDAMENTALS

3 Credits

Recommend WLD or MTT background. This course studies the fundamentals of thermodynamics and reactions occurring in metals subjected to various kinds of heat treatment. Includes chemical and physical metallurgy; theory of alloys; heat treatment principles as applied to ferrous and non-ferrous materials, tests to determine uses; heat treatment for steels, special steels, and cast iron; powder metallurgy; and use of gas and electric furnaces and their applications.

PUBLIC SAFETY TECHNOLOGIES

Specialties:

Fire Science

Environmental Care

Fire Science: The Applied Fire Science Technology program provides students with course work in theory, formula, and application in the science of firefighting. Extensive practical skills, abilities, and knowledge training prepares graduates for employment and promotional advancements in fire departments, industrial plants, fire underwriters groups, and building fire safety organizations.

The two-year program, requiring 64 credits, leads to the Associate of Applied Science degree. State of Indiana Master Certifications are available in specialized areas: Driver/Operator, Strategy and Tactics, Fire Service Management, Fire Prevention/Inspector, Fire/Arson Investigation, and Hazardous Materials Specialist. National Fire Academy field programs are offered and certificates and credits are awarded upon successful completion.

Course schedules are arranged to meet firefighters' working schedules.

Environmental Care: The Environmental Care Specialty program

provides instruction to prepare students for entry level positions as industrial laboratory technicians with a specialty in Environmental Science (Wastewater Treatment). Coursework begins with process control including temperature, pressure, flow, and level systems. Instrumentation is covered from sensors, transducers, and manual procedures through fully automated testing and control. Instrument/computer interfacing is included in all options.

This two- year Associate of Applied Science degree program requires 63 credits . Students are advised to take regional electives pertaining to their selected specialty of study.

Applied Fire Science
Associate of Applied Science Degree

AAS/Technical Core Courses			(30 Credits)
AFS	101	Fire Technology	3
AFS	102	Fire Apparatus and Equipment	3
AFS	103	Firefighting Strategy and Tactics	3
AFS	104	Building Construction Fire Service	3
AFS	105	Fire/Arson Investigation	3
AFS	106	Hazardous Materials	3
AFS	108	Fire Prevention/Inspection	3
AFS	201	Fire Alarm and Protection Systems	3
AFS	202	Fire Service Management	3
AFS	204	Fire Service Hydraulics	3

AAS/General Education Courses			(20 Credits)
ENG	101	English Composition I	3
ENG	103	Speech	3
MAT	100	Essentials of Math	4
SCI	108	Chemistry Lab	1
SCI	107	Chemistry	3
SOC	101	Human Relations	3
SOC	105	Introduction to Political Science	3

AAS/Regional Courses			(9 Credits)
AFS	209	Fireground Management	3
AFS	210	Computers for the Fire Service	3
ELT	104	Computer Fundamentals for Technology	3

AAS Regional Elective Courses

The student should select 5 credits from the following:

AFS	109	Fire Department Specification	3
AFS	208	Industrial Fire Loss Prevention	3
IMT	121	Industrial Safety	3
AFS	288.01	Incident Command	1
AFS	288.02	Instruction Techniques	1
AFS	288.03	Fire/Arson Detection	1
AFS	288.07	Firefighter Safety Officer	1
AFS	288.10	Fire Officer I	1
AFS	288.13	Building Construction (Non-Combustible)	1
AFS	288.15	Managing Company Tactical Op.	1
AFS	288.17	Advanced Arson Investigation	1

Total AAS Credits **64**

Environmental Care Technology
Associate of Applied Science Degree
ENVIRONMENTAL CARE SPECIALTY

AAS/Technical Core Courses			**(30 Credits)**
ILT	101	Industrial Laboratory Techniques	3
ILT	201	Industrial Instrumentation and Techniques I	3
ILT	202	Industrial Instrumentation and Techniques II	3
ILT	203	Environmental Monitoring	3
ELT	104	Computer Fundamentals for Technology	3
IST	101	Quality Control Concepts and Techniques I	3
IST	102	Techniques of Supervision I	3
SCI	103	Physics I	3
SCI	105	Physics II	3
MAT	108	Statistics	3

AAS/General Education Requirements			**(21 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
ENG	201	Technical Writing	3
MAT	101	Algebra I	3
or			
MAT	104	Algebra/Trigonometry I	3
SCI	107	Chemistry	3
SCI	111	Microbiology	3
SOC	101	Human Relations	3

AAS/Regional Courses			**(9 Credits)**
ENV	104	Plant Operations-Sanitary	3
ENV	208	Plant Operations-Industrial	3
ILT	288.01	Advanced Municipal Wastewater Treatment	3

Student should select three credit hours from the following:

MAT	102	AlgebraII
or		
MAT	105	Algebra/Trigonometry II

Total AAS Credits 63

COURSE DESCRIPTIONS (Fire Science)

AFS 101- FIRE TECHNOLOGY
3 Credits
This general introduction to the study of fire science covers the history of firefighting, types of fire apparatus and protection systems, and general fire problems. Includes study of the chemical and hazardous properties of combustion and related by-products.

AFS 102 - FIRE APPARATUS AND EQUIPMENT
3 Credits
An in-depth examination of the various types of fire apparatus in current use, including pumpers, aerials, elevating and rescue apparatus. Coursework, utilizing N.F.P.A. 1500 and 1901, develops skills in the selection of appropriate apparatus and the preparation of specifications. Includes evaluating bids, financing and equipment selection.

AFS 103 - FIREFIGHTING STRATEGY AND TACTICS
3 Credits
Prepares the student to make responsible decisions concerning fireground strategies and tactics at the company level. Various priority scenarios are used, including preparing for incident command and commanding the initial response. Company operations with basic command decisions are emphasized.

AFS 104 - BUILDING CONSTRUCTION FIRE SERVICE
3 Credits
The design principles involved in the protection of a structure from fire involvement are examined. Examines the signs, symptoms, and indicators of partial or total building collapse in firefighting operations. Includes study of legislative codes and laws concerning: building design, building fire safety, classification of building construction, and blueprint reading.

AFS 105 - FIRE/ARSON INVESTIGATION
3 Credits
Focuses on the responsibility of the firefighter, the investigator, and the department in fire scene investigations. Includes fire cause and loss, collection and preservation of evidence and determination of fire origin, with emphasis on the application of various scientific aids that assist in investigations.

AFS 106 - HAZARDOUS MATERIALS
3 Credits
Introduces basic chemistry in the study of the properties, derivations and uses of explosives and other dangerous materials. These include flammable liquids and solids, oxidizing materials, corrosives, and compressed gases. The identification of chemicals, storage, and handling of hazardous materials are emphasized.

AFS 108 - FIRE PREVENTION/INSPECTION
3 Credits
Examines the function of the fire inspector and organization of the fire prevention unit. Emphasizes the identification of the various codes and regulations utilized by the inspector, with special attention given to the Indiana Fire Code. Includes: the legal authority governing fire prevention, application of the fire code, and management principles, as applied to a bureau.

AFS 109 - FIRE DEPARTMENT SPECIFICATIONS
3 Credits
The student will complete the NFA program on Fire Apparatus Purchase and Maintenance and receive a certificate from the NFA. Preparation of specifications for apparatus, protective clothing, pass units, scuba, and minor equipment are covered. Specifications on location, design and 1500 for Fire Stations will also be included. Each student will write an SOG on a piece of fire equipment.

AFS 201- FIRE ALARM AND PROTECTION SYSTEMS
3 Credits
Examines the use of computers in the fire service. Includes computer-ordered dispatch, data information retrieval of hazardous materials control, and intervention, as well as text-editing abilities.

AFS 202 - FIRE SERVICE MANAGEMENT
3 Credits
The principles and functions of fire science administration and management personnel are introduced. Areas of study include: department organization; administrative and management procedures, personnel selection; line and staff functions; communications; the fire company unit; public relations; and current problems in administration.

AFS 204 - FIRE SERVICE HYDRAULICS
3 Credits
This study of compressible fluids includes: fluid properties, principles of fluid statics, flow system principles, pipe friction and heat loss, flow measurements, pumps and other hydraulic devices and machinery, with applications for fire protection and water supply systems.

AFS 208 - INDUSTRIAL FIRE LOSS PREVENTION
3 Credits
Provides for comprehensive study of industrial fire loss prevention and control management programs. Includes: procedures for fire risk and loss control; standards and specifications for equipment; laws, codes and organization of fire brigades; and, administrative control of industrial operation.

AFS 209 - FIREGROUND MANAGEMENT
3 Credits
Emphasizes the command and control of major fire department operations at an advanced level, linking operations and safety. Areas of study include: pre-incident preparation, size-up, incident command system, and incident management. Utilizes simulated incidents requiring the applications of appropriate solutions.

AFS 210 - COMPUTERS FOR THE FIRE SERVICE
3 Credits
Focuses on the need for and uses of the computer in the fire service, from computer ordered dispatch to information retrieval of hazardous materials control and intervention. This course includes the text editing abilities of computer printing.

AFS 288-01 - INCIDENT COMMAND
3 Credits
The person who assumes command of initial response resources, generally company officers. Persons attending this course should have prior knowledge of leadership, fire hazard, and causes, firefighting strategy and tactics, fire chemistry, and safety practices as described in NFPA #1021.

Topics covered in this course are:

1. Concepts of Incident Command
2. Pre-incident Information
3. Fire Flow
4. Proper communication in order to effectively command an incident with emphasis on firefighter safety.

This course will meet the First Class Firefighter requirements.

AFS 288 - 02 - INSTRUCTION TECHNIQUES
3 Credits
Designed for company officers and other fire/rescue service personnel responsible for conducting periodic company level or small unit training. Instructional Techniques for Company Officers introduces participants to basic instructional concepts and techniques. The emphasis of this course is teaching principles and techniques applicable to in-service fire and rescue service skills training. The course meets selected objectives of NPQS Standard 1041, Fire Service Instructor Professional Qualifications, Level 1.

The course covers:

1. Concepts and adult learning
2. Training objectives and lesson planning
3. Methods of instruction and teaching techniques applicable to skills training
4. Testing and evaluation

AFS 288-03 - FIRE/ARSON DETECTION
3 Credits
Fire/Arson Detection provides student training in identification of probable arson fires; determining the point of origin and probable cause; and related actions to be taken at the scene of a fire incident. The various legal aspects that deal with the initial stages of a possible arson incident are also examined. The educational objective is to provide fire suppression personnel skills in identifying accidental fires and to recognize the signs of suspicious and incendiary fire incidents.

AFS 288-07 - FIRE SAFETY OFFICER
3 Credits
The participant will be able to identify and analyze firefighter safety and survival concerns and recommend solutions to reduce firefighter fatalities and injuries. The course will address design and implementation of a departmental safety program. The command issues, policies and programs addressing firefighter health and safety in emergency situations. NFPA 1500, 1501, 1403 will all be discussed. This course is designed for the fire chief, training officer, fire department safety officer, and the instructor. Course meets the safety officer requirements under new OSHA 1910.120.

AFS 288-10 - FIRE OFFICER I
1 Credit
This is a dynamic course to help you to develop and improve your managerial and supervisory skills. This course emphasizes the importance of work groups within the fire service. The following major supervisory skills are covered:

- Group Dynamics
- Communication Skills (oral & written)
- Personnel Motivation
- Counseling
- Conflict Resolution

Meeting selected objectives of NPQS 1021, Fire Officer Professional Qualifications, this course was developed by the National Fire Academy. This course, formerly taught as "Team Effectiveness," was developed by the NFA.

AFS 288-13 - BUILDING CONSTRUCTION (NON-COMBUSTIBLE)
3 Credits
Building Construction for Fire Suppression Forces: The Principles of Non-combustible and Fire-Restrictive Construction. This course provides an introduction to the special characteristics of noncombustible and fire-restrictive construction as they concern the fire service. The primary emphasis is on improving the fire officer's ability to ensure firefighter safety by recognizing common causes and indicators of failure and other hazards related to building construction or contents. An understanding of the course mate-

rial will improve operational effectiveness as the fire officer will be able to better predict the overall reaction of a building to fire conditions. This course was developed by the N.F.A.

AFS 288-15 - MANAGING COMPANY TACTICAL OPERATIONS
3 Credits

Managing Company Tactical Operations: Preparation is the first of four courses designed to develop the Company Commander's supervisory and management capabilities in structural firefighting operations. This course examines the critical elements of pre-incident preparation for structural firefighting operations. Key content includes the Company Commander's role in fireground operations, company readiness, communications process, building construction and fire behavior, and the process of pre-incident planning. Subsequent courses address Command Decision Making, Structural Firefighting Tactics, and Structural Firefighting Simulation. Is highly recommended that these courses be taken in sequence. This course addresses topics similar to the 1986 hand-off course, Preparing for Incident Command. The instructional methods used in MCTO:P are designed to provide increased application for the development of a higher degree of proficiency.

AFS 288-17 - ADVANCED ARSON INVESTIGATION
3 Credits

A course designed to further the training of those firefighters already skilled in the arts of fire scene investigation. Topics include background investigations, courtroom demeanor, expert testimony, and interview and interrogation techniques. This is an ADVANCED level course. BASIC CAUSE AND ORIGIN WILL NOT BE DISCUSSED IN THIS CLASS.

IMT 121 - INDUSTRIAL SAFETY
3 Credits

Introduction to Occupational Safety and Health standards and codes with emphasis on applications of codes to typical work situations. Includes emergency first aid, safety protection, eye protection, chemical handling. Covers employer and employee rights, as well as violations, citations, penalties, variances, appeals, and record keeping.

COURSE DESCRIPTIONS (Environmental Care)

ILT 101 - INDUSTRIAL LAB TECHNIQUES

3 Credits

Virtually every manufacturing or industrial service facility uses a laboratory in some part of the production, process control, quality control, test, and/or research work accomplished within the company. The industrial lab technician commonly works in and often supervises such labs. This lecture course will familiarize students with the day-to-day activities, including the scope of the work performed, relationship between lab activities and the success of the establishment, instrumentation and computer hardware and software for data manipulation and analysis, and personnel inter-relationships and functions. Process control terminology, systems, and techniques are emphasized.

ILT 201- INDUSTRIAL INSTRUMENTATION AND TECHNIQUES I

3 Credits

This is a hands-on, intensive lecture/lab course which emphasizes precision measurement via pressure, strain, force, flow, and level gauges. Instruction will cover the related probes, sensors, transducers, computer interfaces (IEEE 488 and RS 232), computer hardware and peripherals, computer software necessary for the acquisition, summarization, analysis, and presentation of data. This course should be followed by Industrial Instrumentation and Techniques 2 (ILT 202). Prerequisites ILT 101, MAT 102, SCI 103.

ILT 202 - INDUSTRIAL INSTRUMENTATION AND TECHNIQUES II

3 Credits

This course is a continuation of ILT 201 (Industrial Instrumentation and Techniques 1). It is a hands-on, intensive lecture/lab study which emphasizes wet chemistry and instrumental chemistry applications. Data will be collected, both manually and automatically via probes/sensors, and analyzed through the utilization of computer software. Specific areas covered include wet techniques, such as gravimetric, titrimetric, and electrode based procedures; and instrumental techniques, such as spectrophotometric, chromatographic, and polarographic procedures. Prerequisites ILT 201, SCI 107.

ILT 203 - ENVIRONMENTAL MONITORING

3 Credits

The United States Environmental Protection Agency (USEPA) and other governmental and non-governmental organizations are interested in protecting the ecosystems of the earth from harmful changes and even enhancing those ecosystems in terms of future growth. Because manufacturing and industrial service companies use water, air, and a variety of other chemical compounds in their processes, the potential exists for dangerous chemicals being produced and then released into the environ-

ment so that humans, animals, plants, and non-living substances are altered in negative ways. In the past, there have been serious abuses—and there continue to be. Monitoring the environment will allow for the identification, analysis, and prevention of problems associated with the destruction of quality air, water, and land so vital to the survival of all living things, as well as the beauty of the earth's natural wonders.

ILT 288.01 - ADVANCED MUNICIPAL WASTEWATER TREATMENT

3 Credits

The basics of municipal wastewater treatment are briefly reviewed and then study continues on the special processes of advanced wastewater treatment. Emphasis is placed on ammonia and phosphorous removal, process control, filtration, disinfection, and coagulation. This course is excellent preparation for any student desiring to take Indiana's wastewater treatment certification test at the 2,3 or 4 level. The State usually offers the test in May and November of each year. Prerequisite ENV 104.

IMT 121- INDUSTRIAL SAFETY

3 Credits

Introduction to Occupational Safety and Health standards and codes with emphasis on applications of codes to typical work situations. Includes emergency first aid, safety protection, eye protection, chemical handling. Covers employer and employee rights, as well as violations, citations, penalties, variances, appeals, and record keeping.

IST 101 - QUALITY CONTROL CONCEPTS AND TECHNIQUES I

3 Credits

This course covers the latest quality control concepts and techniques as used in industry to manufacture a quality product and maintain production. Emphasis is placed on the modern manufacturing requirement including instrumentation, organization, and quality assurance.

TRANSPORTATION SERVICES TECHNOLOGY

Specialties:

Ford ASSET

Toyota T-TEN

G.M.ASEP (new for Fall 1993)

Automotive Service

Auto Body

The well trained automotive service technician is in great demand because of the complexity of modern vehicles and society's transportation needs. Employment in the transportation industry may be found in new car dealerships, franchise automotive businesses, independent automotive repair centers, tire stores, service stations, leasing companies and government service centers. Some graduates may choose to become self-employed. Additional opportunities for employment are available in related areas such as recreational vehicles, off-highway equipment, insurance, and parts and services.

Automotive Service Technology is a four -semester program, requiring 73 credits, that leads to an Associate of Applied Science degree.

The areas of specialty include: Ford ASSET, Toyota T-TEN, GM ASEP, and Auto Body.

Automotive Student Service Education Technology (ASSET) is a joint effort of Ford Motor Company, Ford and Lincoln-Mercury dealers and Ivy Tech. It is a two-year program designed to develop entry-level service technicians for Ford and Lincoln-Mercury dealerships. ASSET provides you with a unique two-year work-study experience that leads to an Associate of Applied Science degree in Automotive Service Technology.

The ASSET program has been carefully designed to provide Ford and Lincoln-Mercury dealerships and their customers with well-qualified, Ford trained and certified service technicians, who are proficient in the latest automotive service technologies and methods. In addition, the program: 1) Ensures that ASSET-trained service technicians are able to understand and work with new systems and components as they are introduced; 2) Enables ASSET-trained personnel to make rapid advancements in their career paths — after additional dealership experience.

Toyota Technical Education Network (T-TEN) is a joint effort of Toyota Motor Sales, USA and Ivy Tech. It is a two-year cooperative education program that leads to an Associate of Applied Science degree in Automotive Service.

The T-TEN has been developed to fill the growing need for technically competent apprentice technicians for dealerships. Through a cooperative link with Ivy Tech, Toyota will offer a variety of unique educational benefits: 1) Latest Toyota Training Courses and Instructional Materials; 2) Dealership Work-Study Opportunity; 3) Student Scholarships; 4) Dealership Placement Assistance; 5) State-of-the-art Training Components and Vehicles; and 6) Student will earn an Associate of Applied Science degree and Toyota Certification.

The General Motors Automotive Student Educational Program (ASEP) is a two- year associate degree automotive service training program designed to upgrade the technical and professional level of the incoming automotive technician. Each semester the student alternates eight weeks of classroom training with eight weeks of cooperative education work experience in a sponsoring GM dealership.

The most up-to-date technical training is provided on late model GM vehicles and components. The latest GM training aids are presented in engine repair, anti-lock braking systems, suspension, automatic and manual transmissions, fuel and emission controls, electrical and electronic engine controls, heating and air conditioning, and fuel induction systems. General education courses include mathematics, physical science, English, speech,

and human relations.

The general education courses and the GM specific technical training courses provide the student with the skills and professionalism to service today's complex vehicle and enhance career opportunities in the automotive service industry.

Ford ASSET Specialty
Associate of Applied Science Degree

AAS/Technical Core Courses			**(54 Credits)**
AST	101	Chassis/Suspension Principles	3
AST	102	Two/Four Wheel Alignment	3
AST	104	Start and Charge Systems	3
AST	105	Fuel Systems	3
AST	106	Electronic Ignition Systems	3
AST	107	Engine Principles and Design	3
AST	108	Electrical Accessory Systems	3
AST	201	Heating and A/C Principles	3
AST	202	Computer Engine Controls	3
AST	203	Engine Rebuild	3
AST	204	Automatic Transmission/Transaxle	3
AST	205	Manual Transmission/Transaxle	3
AST	207	Engine Performance	3
AST	208	Differentials/Drivelines	3
AST	209	Automotive Braking Systems	3
AST	288.01	Ford STST Auto Certification	3
ELT	104	Computer Fundamentals for Technology	3
ELT	113	Basic Electricity	3

AAS/General Education Requirements			**(19 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
SOC	101	Human Relations	3
MAT	101	Algebra I	3
MAT	102	Algebra II	3
SCI	101	Physical Science	3
SCI	102	Physical Science Lab	1

Total AAS Credits **73**

Automotive Service Technology
Toyota T-TEN Specialty
Associate of Applied Science Degree

AAS/Technical Core Courses			**(54 Credits)**
AST	101	Chassis/Suspension Principles	3
AST	102	Two/Four Wheel Alignment	3
AST	104	Start and Charge Systems	3
AST	105	Fuel Systems	3
AST	106	Electronic Ignition Systems	3
AST	107	Engine Principles and Design	3
AST	108	Electrical Accessory Systems	3
AST	201	Heating and A/C Principles	3
AST	202	Computer Engine Controls	3
AST	203	Engine Rebuild	3
AST	204	Automatic Transmission/Transaxle	3
AST	205	Manual Transmission/Transaxle	3
AST	206	Heating/Air Conditioning Service	3
AST	207	Engine Performance	3
AST	208	Differentials/Drivelines	3
AST	209	Automotive Braking Systems	3
ELT	104	Computer Fundamentals for Technology	3
ELT	113	Basic Electricity	3

AAS/General Education Requirements			**(19 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
SOC	101	Human Relations	3
MAT	101	Algebra I	3
MAT	102	Algebra II	3
SCI	101	Physical Science	3
SCI	102	Physical Science Lab	1

Total AAS Credits **73**

Automotive Service Technology
Non Manufacturer Specific Speciality
Associate of Applied Science Degree

AAS/Technical Core Courses			**(54 Credits)**
AST	101	Chassis/Suspension Principles	3
AST	102	Two/Four Wheel Alignment	3
AST	104	Start and Charge Systems	3
AST	105	Fuel Systems	3
AST	106	Electronic Ignition Systems	3
AST	107	Engine Principles and Design	3
AST	108	Electrical Accessory Systems	3
ELT	113	Basic Electricity	3
AST	201	Heating and A/C Principles	3
AST	202	Computer Engine Controls	3
AST	203	Engine Rebuild	3
AST	204	Automatic Transmission/Transaxle	3
AST	205	Manual Transmission/Transaxle	3
AST	206	Heating and Air Conditioning Service	3
AST	207	Engine Performance	3
AST	208	Differentials/Drivelines	3
AST	209	Automotive Braking Systems	3
ELT	104	Computer Fundamentals for Technology	3

AAS/General Education Requirements			**(19 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
SOC	101	Human Relations	3
MAT	101	Algebra I	3
MAT	102	Algebra II	3
SCI	101	Physical Science	3
SCI	102	Physical Science Lab	1

Total AAS Credits **73**
Automotive Service Technology

Automotive Body Repair Technology
Technical Certificate Specialty

Technical Core Courses			**(27 Credits)**
ABR	101	Body Repair Fundamentals	3
ABR	103	Auto Paint Fundamentals	3
ABR	104	Collision Damage Analysis and Repair	3
ABR	105	Conventional Frame Diagnosis and Correction	3
ABR	106	Body Repair Applications	3
ABR	107	Automotive Refinishing Techniques	3
ABR	108	Unibody Structural Analysis/ Repair	3
ABR	109	Collision Damage Appraising	3
WLD	114	Introductory Welding	3

General Education Requirements			**(3 Credits)**
SOC	101	Human Relations	3
or			
ENG	101	English Composition	3

Regional Courses			**(6 Credits)**
ABR	119	Glass Installation	3
ABR	120	Fiberglass/Plastic Repair	3

Total TC Credits **36**

COURSE DESCRIPTIONS (Automotive Service)

AST 101 - CHASSIS/SUSPENSION PRINCIPLES
3 Credits
Various frame designs and suspension systems used in modern vehicles are explained in this course. Repair and replacement of steering linkages and chassis components, both front and rear systems are included.

AST 102 - TWO/FOUR WHEEL ALIGNMENT
3 Credits
Investigates principles of two and four wheel alignment and wheel balance. Emphasis in the lab is on practical work experience, covering all the alignment angles.

AST 104 - START AND CHARGE SYSTEMS
3 Credits
An intensive study of the construction, function and principles of operation of starting motors, charging systems and their control systems with emphasis on diagnosis and bench repair.

AST 105 - FUEL SYSTEMS
3 Credits
Study of automotive fuel systems, carburetion and fuel injection systems. Students also study emission controls, as they apply to the fuel system. Focus on shop procedures for troubleshooting, servicing, replacing or overhauling fuel system, and emission control components.

AST 106 - ELECTRONIC IGNITION SYSTEMS
3 Credits
Introductory course covering basic principles of electronic ignition systems. Includes functions and testing of the conventional breaker point ignition.

AST 107 - ENGINE PRINCIPLES AND DESIGN
3 Credits
Examines engine dynamics, theory of engine operation and design characteristics of all engine assemblies and sub-assemblies. Also covers the removal, tear down, visual inspection, precision measuring, inspection and cleanup of components and parts and rebuilding engines according to industry standards.

AST 108 - ELECTRICAL ACCESSORY SYSTEMS
3 Credits
Study of function, construction, principles of operation, and trouble-shooting techniques for various accessories of automotive vehicles. Includes electrical accessories: windshield wipers and washers, power seats, power windows, adjustable steering wheels, power tailgates and automatic headlamp systems.

AST 201 - HEATING AND A/C PRINCIPLES
3 Credits
An in-depth study of automotive air conditioning and heating. Special emphasis on the operation and theory of the air conditioning system and its components. Vacuum and electrical control circuits are included.

AST 202 - COMPUTER ENGINE CONTROLS
3 Credits
Examines computerized ignition, carburetor, fuel injection and sensors for engine controls on late model passenger cars. Covers theory, diagnostic procedure and repair procedure of the computer command control, MCU, EEC IV, lean burn and other spark control systems.

AST 203 - ENGINE REBUILD
3 Credits
Precision machines, precision tools and equipment are needed for rebuilding today's modern engine. Their repair, proper assembly and installation techniques applicable to the automotive engine are included.

AST 204 - AUTOMATIC TRANSMISSION/TRANSAXLE
3 Credits
A lecture and laboratory course dealing with construction, functions and principles of operation. Emphasizes practical work experience in the lab where students overhaul automatic transmissions and transaxle assemblies.

AST 205 - MANUAL TRANSMISSION/TRANSAXLE
3 Credits
Theory and overhaul procedures related to the manual transmission/transaxle, clutches and transfer cases. Diagnosing and overhauling the manual power train.

AST 206 - HEATING AND AIR CONDITIONING SERVICE AND REPAIR
3 Credits
Covers diagnosis, service and repair procedures for the heating/air conditioning system. Includes replacement and overhaul procedures for components related to heating/air conditioning system.

AST 207 - ENGINE PERFORMANCE
3 Credits
An advanced course in the theory, diagnosis, and repair of computer controlled ignitions and fuel systems on late model vehicles, using state-of-the-art diagnostic equipment. Emphasis is on recommended manufacturer methods for servicing the computer controlled ignition system.

AST 208 - DIFFERENTIALS/DRIVELINES
3 Credits
A study of differential and driveline theory and overhaul. Includes overhaul and service procedures applicable to gear sets, bearings and seals. Theory and overhaul procedures related to the driveshaft and axle assemblies for front and rear wheel drive vehicles is included.

AST 209 - AUTOMOTIVE BRAKING SYSTEMS
3 Credits
Theory, service and repair of automotive braking systems and their components. Emphasis on hydraulic theory and repair and service of booster units, master cylinder, wheel cylinder, caliper rebuilds, and drum and rotor service. Diagnosis and repair of the anti-lock braking system is also included.

COURSE DESCRIPTIONS (Auto Body)

ABR 101 - BODY REPAIR FUNDAMENTALS
3 Credits
Examines the characteristics of body metals and includes the installation of mouldings, ornaments and fasteners with emphasis on sheet metal analysis and safety.

ABR 103 - AUTO PAINT FUNDAMENTALS
3 Credits
Introduces auto paint with emphasis on the handling of materials and equipment in modern automotive technologies.

ABR 104-COLLISION DAMAGE ANALYSIS AND REPAIR
3 Credits
Instruction in analyzing extensive body damage and determining the tools and procedures needed to replace panels.

ABR 105 - CONVENTIONAL FRAME DIAGNOSIS AND CORRECTION
3 Credits
The use of tools, frame machines and equipment for frame and chassis repair. Includes study of terms pertaining to front suspension and rear axle. The use of frame gauges, tram gauges, and other measuring devices is emphasized.

ABR 106 - BODY REPAIR APPLICATIONS
3 Credits
A course in basic body repair with emphasis on safety, grinding, picking, filing, plastic applications related to minor damage and the use and care of hand and power tools.

ABR 107 - AUTOMOTIVE REFINISHING TECHNOLOGY
3 Credits
Instruction in the total refinishing of an automobile with emphasis on advanced and specialty painting techniques.

ABR 108 - UNIBODY STRUCTURAL ANALYSIS AND REPAIR
3 Credits
This course includes: unibody repairs; identification and analysis of damage; measuring and fixturing systems; straightening systems and techniques; mechanical component service; and knowledge of suspensions; and steering systems on front wheel drive unibody vehicles.

ABR 109 - COLLISION DAMAGE APPRAISING
3 Credits
Course work studies uses of estimation guides, procedures for itemizing abbreviations, parts numbers, and uses of time and money conversion tables. Emphasizes damage inspection, recording on estimate sheets, and the calculation of costs.

ABR 119 - GLASS INSTALLATION
3 Credits
Examines different types of automobile glass and their uses. Removal and installation of front and rear glass using rubber channel or synthetic rubber adhesive. Install and adjust side glass. Install and adjust functioning and nonfunctioning specialty glass.

ABR 120 - FIBERGLASS/PLASTIC REPAIR
3 Credits
Introduces types of fiberglass and plastic materials used in auto body repair. Covers both interior and exterior applications.

BUSINESS DIVISION

Career opportunities in business and office environments are expanding rapidly for those who have the technical skills to meet the demands. Programs offered through the Business Division provide education to students to successfully meet the needs of Indiana business employers. Contact the Admissions Office at 921-4800 for specific course and program offerings.

ACCOUNTING TECHNOLOGY

The Accounting Technology programs are two -year degree programs designed to prepare graduates for immediate entry into a career in the accounting field. Technical skills in financial accounting, cost accounting, and tax preparation are included in the program.

Typical duties in accounting include maintaining journals and ledgers, processing banking transactions, billing, preparing payroll, maintaining inventory records, purchasing, processing expense reports, preparing financial statements, and analyzing managerial reports. Position titles may include junior or staff accountant, junior auditor, cost accounting clerk, bookkeeper, payroll clerk, inventory clerk, accounts receivable clerk, accounts payable clerk, and financial management trainee.

The Business Division offers Accounting Technology programs that lead to an Associate of Applied Science degree and an Associate of Science degree. The Associate of Science degree is designed to be a transfer program.

Accounting Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(27 Credits)**
ACC	101	Accounting Principles I	3
ACC	102	Accounting Principles II	3
BUS	102	Business Law	3
ACC	105	Income Tax I	3
ACC	201	Intermediate Accounting I	3
ACC	202	Intermediate Accounting II	3
ACC	203	Cost Accounting I	3
CIS	208	Electronic Spreadsheets in Business	3
CIS	101	Introduction to Microcomputers	3

AAS/General Education Courses			**(15 Credits)**
MAT	107	Math of Finance	3
ENG	101	English Composition I	3
ENG	103	Speech	3
SOC	101	Human Relations	3
SOC	107	Principles of Microeconomics	3

AAS/Regional Courses			**(22 Credits)**
May select from:			
ACC	109	Personal Finance	3
ACC	206	Managerial Accounting	3
BUS	201	Principles of Management	3
AOT	205	Business English for Information Processors	3
AOT	103	Microcomputer Word Processing (Word Perfect)	3
AOT	101	Basic Formatting (Typing I)	3
BUS	101	Introduction to Business	3
ACC	220	Special Applications Lab I (Program Chairperson's Signature required for this class)	1
AOT	113	Office Calculating Machines	1
CIS	102	Data Processing Fundamentals	3
CIS	106	Microcomputer Operating Systems	3
CIS	207	Microcomputer Database Management Systems	3

Students may select other courses with the approval of the program advisor.

Accounting Technology
Associate of Science Degree

AS/Technical Core Courses			**(33 Credits)**
ACC	101	Accounting Principles 1	3
ACC	102	Accounting Principles 2	3
ACC	105	Income Tax I	3
ACC	201	Intermediate Accounting I	3
ACC	202	Intermediate Accounting II	3
ACC	203	Cost Accounting I	3
ACC	209	Auditing	3
*ACC	213	Electronic Spreadsheets	3
CIS	101	Introduction to Microcomputers	3
CIS	223	Integrated Business Software	3
BUS	102	Business Law	3

AS/General Education Courses			**(24 Credits)**
ENG	101	English I	3
ENG	102	English II	3
ENG	103	Speech	3
HUM	101	Survey of Humanities	3
MAT	109	Finite Math	3
SOC	104	Introduction to Sociology	3
SOC	107	Principles of Microeconomics	3
SCI	10X	Science	3**

**Life and Physical Sciences: SCI 101, 102, 103, 105, 107, 109

AS/Electives One free elective	**3**
*CIS 208 Electronic Spreadsheets	3

Total AS Credits	**60**

COURSE DESCRIPTIONS

ACC 101 - ACCOUNTING PRINCIPLES I
3 Credits
Introduces the fundamental principles, techniques, and tools of accounting. The mechanics of the accounting cycle include collecting, recording, summarizing, analyzing, and reporting of information pertaining to service and mercantile enterprises. Internal control, deferred charges, notes and interest, valuation of receivables, payrolls, inventories, and plant assets are also covered.

ACC 102 - ACCOUNTING PRINCIPLES II
3 Credits
Continues the study of accounting to include partnership and corporate accounting systems. Financial statements including the cash flow statement are prepared and analyzed. Topics covered include long-term liabilities and investments. Cost, managerial, branch and nonprofit accounting techniques may be introduced. Prerequisite ACC 101.

ACC 105 -INCOME TAX I
3 Credits
Offers an overview of federal income tax law for individuals including: taxable income, capital gains and losses, adjustments, standard and itemized deductions, tax credits and appropriate tax forms. Also introduced are tax concepts needed as a sole proprietorship.

ACC 108 - CAREER ESSENTIALS OF ACCOUNTING
3 Credits
This course is an introduction to the basic principles of accounting as utilized in a variety of office settings. The course includes principles of debit and credit, double entry bookkeeping, use of journals and analyzing transactions. Uses of ledgers, posting procedures, petty cash, banking procedures, payroll, depreciation, work sheets, balance sheets, and income statements are covered as well.

ACC 109 - PERSONAL FINANCE
3 Credits
Examines the process of setting and achieving financial goals. Emphasizes financial management, budgeting for current expenses, projected cash flow and management of short and long-term credit. Includes use of insurance to reduce risks and vehicles for saving and investing.

ACC 111 - ACCOUNTING PRINCIPLES LAB I
1 Credit
Presents a series of planned accounting learning problems and activities to accompany concepts and theories included in an accounting principles course. The touch method of numeric input on a calculator may be introduced, and some computerized problems may be included.

ACC 112 - ACCOUNTING PRINCIPLES LAB II
1 Credit
This course presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in the Accounting Principles II course. Computerized problems may be used.

ACC 201 - INTERMEDIATE ACCOUNTING I
3 Credits
Studies accounting principles and applications at an intermediate level pertaining to the income statement and balance sheet, cash and short-term investments, receivables, inventories, plant assets and intangible assets. Included are analysis of bad debts, inventory valuation, repairs and maintenance, depreciation of plant assets and present value applications. Prerequisites ACC 101, 102.

ACC 202 - INTERMEDIATE ACCOUNTING II
3 Credits
Continues studies of Intermediate Accounting I and includes long-term investments, current and contingent liabilities, long-term debt, stockholders equity, statement of cash flows and financial statement analysis. Also included are corporate capital and treasury stock transactions, dividends, earnings per share, accounting for income taxes, corrections of errors and creation of financial statements from incomplete records. Prerequisite ACC 201.

ACC 203 - COST ACCOUNTING I
3 Credits
Examines the manufacturing process in relation to the accumulation of specific cost of manufactured products. Various cost accounting report forms, material, labor control, and allocation of manufacturing costs to jobs and departments are studied. Prerequisite ACC 101.

ACC 205 - SEMINAR IN ACCOUNTING
1 Credit
Allows accounting students to pursue (a) specific area(s) of interest at a more advanced level in Accounting. Prerequisite ACC 201.

ACC 206 - MANAGERIAL ACCOUNTING
3 Credits
This course provides an understanding of accounting records and management decision making with topics including internal accounting records and quantitative business analysis. Prerequisite ACC 101 and 102..

ACC 207 - ACCOUNTING FOR GOVERNMENT AND NONPROFIT ENTITIES
3 Credits
This course will emphasize the similarities and differences between government and nonprofit and commercial accounting methods and procedures. The student will be exposed to the basic fund accounting cycle for the general fund and other special funds. Prerequisites ACC 101, 102 and ACC 201, 202.

ACC 209 - AUDITING
3 Credits
Covers public accounting organization and operation, including internal control, internal and external auditing, verification and testing of the balance sheet and operating accounts and the auditor's report of opinion on the financial statements. Prerequisites 201, 202.

CIS 208 - ELECTRONIC SPREADSHEETS IN BUSINESS
3 Credits
Provides instruction in the use of all modules of a spreadsheet software package including spreadsheet, graphics, and database operations, applying these modules to business problems. Prerequisite CIS 101.

ACC 219 - COST ACCOUNTING LAB
1 Credit
This course presents a series of planned accounting problems and activities designed to accompany concepts and theories included in Cost Accounting I. Computerized problems may be used. Prerequisite ACC 101.

ACC 220 - SPECIAL APPLICATIONS LABORATORY 1
1 Credit
This course presents a series of planned accounting learning problems and activities designed to accompany concepts and theories included in an accounting course. Computerized problems may be used. Prerequisite ACC 101 and ACC 102.

ACC 222 - ACCOUNTING SOFTWARE APPLICATIONS
2 Credits
Accounting problems will be solved using software similar to software currently being used in business. Planned learning activities will include installation, operation and analysis of an accounting software package. Prerequisite ACC 101, 102.

ACC 298 - FIELD STUDY/COOPERATIVE EDUCATION
3 Credits
The student will work at a job site that is specifically related to his/her career objectives. The course will be a field project within the framework of actual work experience in accounting.

ADMINISTRATIVE OFFICE TECHNOLOGY

The Administrative Office Technology program prepares students for an office environment which is becoming automated and will approach the electronic office predicted for the future. Students develop not only the basic, traditional office skills, but also skills using technology such as computer hardware, software, and other electronic equipment.

The program is designed to accommodate students with different levels of training and experiences. Courses are offered which provide initial, advanced, and refresher education and which assist individuals in achieving professional recognition and career progression. The Associate of Applied Science Program prepares graduates as administrative office workers and provides opportunities for specialized training in such areas as legal secretarial, medical secretarial, office management, stenography, and information/word processing.

The Associate of Science program provides training for office management and secretarial positions. Advanced training will allow students to broaden their career options and pursue upper-level administrative support positions in business management, accounting, and marketing firms. The A.S. degree is recognized nationwide as an interim degree for persons who will later

pursue a bachelor's degree.

Students who complete the recommended sequence of courses are eligible to take the Administrative/Information Processing Specialist (AIPS) or the Certified Professional Secretary (CPS) exam administered by the Institute for Certifying Secretaries of the Professional Secretaries International Association (PSI). Career Development Certificates are also available in specialized areas.

In addition to the usual secretarial duties, the medical secretary serves as a liaison between the doctor and patient and is important in building and maintaining good relations with the patients. Entry-level positions are found in doctors' offices, clinics, hospitals, and other health-related organizations.

Students can pursue Ivy Tech's Technical Certificates in Secretarial-Medical and Secretarial Administrative. This program will take the full-time student approximately one year to complete.

Administrative Office Technology
Associate of Science Degree

AS/General Education Requirements			**(24 Credits)**
ENG	101	English Composition I	3
ENG	102	English Composition II	3
ENG	103	Speech	3
MAT	109	Finite Math	3
SCI	xxx	Science	3
HUM	101	Survey of Humanities	3
SOC	107	Principles of Microeconomics	3
SOC	104	Introduction of Sociology	3

AS/Technical Core Courses			**(36 Credits)**
AOT	101	Basic Formatting	3
AOT	102	Document Management	3
AOT	103	Information/Word Processing Concepts	3
AOT	204	Administrative Office Procedures	3
BUS	101	Introduction to Business	3
BUS	102	Business Law	3
BUS	201	Principles of Management	3
ACC	101	Accounting Principles I	3
ACC	102	Accounting Principles II	3
CIS	101	Introduction to Microcomputers	3
CIS	208	Electronic Spreadsheets	3
xxx	xxx	Technical Elective*	3

*Students may take any course desired for the technical elective.

Total Associate of Science Degree Credits **60**

Administrative Office Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(33 Credits)**
***Technical Certificate**			**(18 Credits)**
*AOT	101	Basic Formatting	3
*AOT	102	Document Management	3
AOT	103	Information/Word Processing Concepts	3
*AOT	104	Document Production	3
AOT	201	Specialized Formatting/Transcription	3
AOT	202	Information/Word Processing Applications	3
AOT	203	Principles of Office Management	3
*AOT	204	Administrative Office Procedures	3
*AOT	205	Business English for Information Processing	3
ACC	101	Accounting Principles I	3
*CIS	101	Introduction to Microcomputers	3

AAS/General Education Requirements			**(15 Credits)**
***Technical Certificate**			**(6 Credits)**
*ENG	101	English Composition I	3
ENG	102	English Composition II	3
*MAT	107	Math of Finance	3
SOC	101	Human Relations	3
SOC	107	Principles of Microeconomics	3

AAS/Regional Courses			**(17 Credits)**
***Technical Certificate**			**(8 Credits)**
May select from:			
*AOT	212	Microcomputer Word Processing	3
AOT	108	Shorthand I	3
AOT	111	Shorthand II	3
*AOT	113	Office Calculating Machines	1
AOT	206	Shorthand II	3
AOT	112	Data Entry	3
AOT	216	Practicum/Internship	3
ACC	102	Accounting Principles II	3
CIS	208	Electronic Spreadsheets	3
CIS	106	Microcomputer Operating Systems	3
CIS	223	Integrated Business Software	3
CIS	102	Data Processing Fundamentals	3

**BUS	102	Business Law	3

(*AOT 212 and 113 are required regional electives for Technical Certificate.)
(**Bus 102 is a required regional elective for an associate degree.)
Students may select other courses with the approval of the program advisor.

Total AAS Credits	**65**
***Total Technical Certificate Credits**	**32**

Medical Secretary -Specialty Technical Certificate

Technical Core			**(20 Credits)**
AOT	101	Basic Formatting	3
AOT	102	Document Management	3
AOT	205	Business English for Information Processing	3
MEA	101	Medical Terminology	3
MEA	111	Medical Typing and Transcription	3
MEA	204	Administrative Office Management	3
MEA	201	Medical Word Processing and Machine Transcription	2

General Education Requirements			**(6 Credits)**
ENG	101	English Composition I	3
MAT	107	Math of Finance	3

Regional Courses			**(6 Credits)**
May select from:			
AOT	108	Shorthand I	3
AOT	111	Shorthand II	3
AOT	113	Office Calculating Machines	1
AOT	202	Information Word Processing Apl.	3
AOT	103	Information Word Processing Concepts	3
CIS	208	Electronic Spreadsheets	3
MEA	115	Medical Insurance	3
SCI	113	Anatomy and Physiology I	3
SCI	115	Anatomy and Physiology I	3

Total Technical Certificate Credits	**32**

COURSE DESCRIPTIONS

MEA 101 - MEDICAL TERMINOLOGY
3 Credits
Addresses basic terminology required of the allied health professional. Greek and Latin prefixes are presented, as well as suffixes, word roots, and combining forms. Emphasis is on forming a solid foundation for a medical vocabulary including meaning, spelling, and pronunciation. Medical abbreviations, signs, and symbols are included. It also includes desirable personality traits, interpersonal relationships and attitudes within the medical office.

MEA 111 - MEDICAL TYPING AND TRANSCRIPTION
3 Credits
Focuses on improving typewriting ability in the medical field, including transcription with emphasis on production, speed and accuracy. Course includes formatting, typing, and transcription of articles, medical reports, case histories, and correspondence using medical terminology.

MEA 115 - MEDICAL INSURANCE
2 Credits
An overview of medical insurance problems with skills developed in handling insurance forms, CIS and ICD-9-CM Coding, and reports as applied to the medical office.

MEA 201 - MEDICAL WORD PROCESSING/TRANSCRIPTION
2 Credits
Advances skills and knowledge of medical dictation, machine transcription, and use of word processing. Includes typing medical reports, terminology, and correspondence.

MEA 204 - MEDICAL OFFICE MANAGEMENT
2 Credits
An in-depth study of various influences on office functions providing a background for organization and management of a physician's office. Includes government and professional sources for consultation.

COURSE DESCRIPTIONS

AOT 101 - BASIC FORMATTING
3 Credits
This course develops keyboarding competencies. Emphasis is placed on increasing keyboarding speed, improving accuracy, developing formatting skills, applying communication skills, and learning document production skills.

AOT 102 - DOCUMENT MANAGEMENT
3 Credits
Designed to acquaint students with alphabetic, numeric, geographic, and subject filing procedures. Exposure to the latest equipment, automation and the newer methods of managing, storing and retrieving records. Role of the file worker and place of document management within the overall business enterprise is emphasized.

AOT 103 - INFORMATION/WORD PROCESSING CONCEPTS
3 Credits
Introduction to the concept of information/word processing systems. Offers hands-on experience in the operation of word processing systems. Prerequisite CIS 101 or equivalent.

AOT 104 - DOCUMENT PRODUCTION
3 Credits
Provides experience producing documents found in business offices. Major focus is on productivity and excellence in document production. Also emphasizes composition skills and the application of communication skills. Prerequisite AOT 101 or typing speed of 40 wpm.

AOT 106 - REFRESHER SHORTHAND
1 Credit
Designed to bring old, unused shorthand skills to an employable level. Taught in a lab setting emphasizing three areas of skill development: speed, theory, and transcription.

AOT 108 - SHORTHAND/NOTETAKING I
3 Credits
Introductory course emphasizing basic theory, brief forms, and speed in reading from notes and the textbook. Focuses on the correct way to write shorthand. Dictation with emphasis placed on writing and transcription techniques.

AOT 110 - KEYBOARDING SKILL DEVELOPMENT
1 Credit
This course is designed to bring old, unused typing skills to an employable level. Emphasizes speed and accuracy improvement through drills on the typewriter and/or personal computer.

AOT 111 - SHORTHAND/NOTETAKING II
3 Credits
Develops dictation, note reading, and transcription skills through drills and tests. Emphasizes speed, accuracy, and use of correct English. Reinforces and builds on principles and skills learned in Shorthand/Notetaking 1.

AOT 112 - DATA ENTRY
3 Credits
Prepares for employment in data entry or related data processing positions in an up-to-date computerized business. Basic keyboarding skills and experience with typical applications and a variety of data entry techniques. Prerequisite typing speed of 40 wpm.

AOT 113 - OFFICE CALCULATING MACHINES
1 Credit
Designed for the acquisition of competence on the 10-key electronic printing/display calculator. Competence on the desk calculator and familiarity with the types of business problems commonly solved on them are essential elements of the course.

AOT 114 - INTRODUCTION TO TYPEWRITING
2 Credits
An introduction to keyboarding and typewriting. Emphasizes keyboard mastery and the ability to type easy copy and perform simple typing exercises.

AOT 115 - INTRODUCTION TO MICROCOMPUTER KEYBOARDING
2 Credits
A course for beginners in keyboarding on the microcomputer. Covers the development of fundamentals: touch keyboarding techniques, familiarization with keyboard including numbers, introduction of major parts of computer, and skill measurement.

AOT 201 - SPECIALIZED FORMATTING/TRANSCRIPTION
3 Credits
Production techniques which include correspondence, business forms, manuscripts, tabulation, and secretarial projects. Correct use of grammar, spelling, and letter formats is stressed, along with a high degree of productivity and skill. Transcription from machine dictation and introduction to products, services, and terminology encountered in business organizations. Prerequisite AOT 104.

AOT 202 - INFORMATION/WORD PROCESSING APPLICATIONS
3 Credits
Knowledge acquired from Information/Word Processing Concepts will be further enhanced as more sophisticated features of a word processing package are learned and applied. Prerequisite AOT 103 or equivalent.

AOT 203 - PRINCIPLES OF OFFICE MANAGEMENT
3 Credits
Covers a broad range of topics including hiring practices, supervision, motivation, decision-making, time, space, and environment management. The course also includes basic management principles, problem solving techniques, selecting, orienting and supervising human resources, motivating workers, labor/management relations, office personnel problems and practices, managing office systems and improving productivity.

AOT 204 - ADMINISTRATIVE OFFICE PROCEDURES
3 Credits
Emphasizes skills, techniques and attitudes businesses desire in office personnel. Provides experience applying skills and knowledge gained in previous technical courses. Identifies professional standards of conduct and appearance necessary to successfully work in the business environment. Prerequisite AOT 101.

AOT 205 - BUSINESS ENGLISH FOR INFORMATION PROCESSING
3 Credits
Basic grammar, punctuation, spelling, proofreading, and other language skills needed in information processing. Prerequisite: typing speed of 25 wpm.

AOT 206 - SHORTHAND/NOTETAKING III
3 Credits
Review of fundamentals learned in Shorthand/Notetaking 1 & 2. Continued emphasis on skill in taking new matter dictation with more emphasis on transcribing mailable letters. Essentials of good English principles are stressed.

AOT 207 - INTEGRATED OFFICE AUTOMATION
3 Credits
Designed to be the culmination of the student's word processing studies. After a complete overview of word processing principles and applications, the student will obtain experience integrating this knowledge with various software packages to solve problems in the electronic office. Development of critical thinking skills is emphasized.

AOT 212 - MICROCOMPUTER WORD PROCESSING
3 Credits
Deals with business application uses of word processing software on microcomputer work stations. Practical applications in the use of a microcomputer word processing software. Prerequisite CIS 101 or equivalent and typing speed of 30 wpm.

AOT 214 - DESKTOP PUBLISHING
3 Credits
Provides computer skills in the production of camera-ready materials through electronic publishing.
AOT 216 - PRACTICUM/INTERNSHIP
3 Credits
Students gain on-the-job experience while earning college credits toward an associate degree.
AOT 281 - 293 - SPECIAL TOPICS IN SECRETARIAL SCIENCES TECHNOLOGY
1-5 Credits

BUSINESS MANAGEMENT

The Business Management program develops the ability to apply the managerial skills needed for self employment and/or for general administrative positions in a variety of business operations. These business opportunities may include retailing/wholesaling, manufacturing, service industries, and business administration.

A two-year program, requiring 64 credits, leads to an Associate of Applied Science degree.

Business Management
Associate of Applied Science Degree

AAS/Technical Core Courses			**(33 Credits)**
BUS	101	Introduction to Business	3
BUS	102	Business Law	3
BUS	201	Principles of Management	3
BUS	202	Human Resource Management	3
BUS	203	Entrepreneurship	3
BUS	204	Case Problems in Management	3
BUS	288	Introduction to Total Quality Management	3
MKT	101	Principles of Marketing	3
DSM	101	Logistics/Purchasing Control	3
CIS	101	Introduction to Microcomputers	3
ACC	101	Accounting Principles I	3

AAS/General Education Courses			**(21 Credits)**
ENG	101	English Composition I	3
ENG	102	English Composition II	3
ENG	103	Speech	3
MAT	101	Algebra I or	
MAT	107	Math of Finance	3
SCI	XXX	Life and Physical Science Elective	3
SOC	101	Human Relations	3
SOC	107	Principles of Microeconomics	3

AAS/Regional Courses			**(10 Credits)**
May select from:			
MKT	204	Marketing Management	3
IST	211	Labor Relations	3
CIS	208	Electronic Spreadsheets	3
MKT	102	Principles of Selling	3
MKT	103	Principles of Retailing	3
MKT	104	Advertising	3
AOT	103	Information/Word Processing Concepts	3

Students may select other courses with the approval of the program advisor.

Total AAS Credits **64**

COURSE DESCRIPTIONS

BUS 101 - INTRODUCTION TO BUSINESS
3 Credits
Examines our business system in relation to our economic society. Studies business ownership, organization principles and problems, management, control facilities, administration, and development practices of American business.

BUS 102 - BUSINESS LAW
3 Credits
Describes the Judicial system and the nature and sources of law affecting business. Studies contracts, sales, and negotiable instruments with emphasis on Uniform Commercial Code applications. Includes appropriate remedies for breach of contract and tort liabilities. Examines business structures and agency.

BUS 201 - PRINCIPLES OF MANAGEMENT
3 Credits
Focuses on the functions of managers, including the management of activities and personnel. Focus is placed on application of guidance principles in management work.

BUS 202 - HUMAN RESOURCE MANAGEMENT
3 Credits
Overview of the activities of human resource manager with emphasis on employer-employee relations, job analysis and evaluation, salary administration, work measurement and standards, performance appraisal, and legal compliance.

BUS 203 - ENTREPRENEURSHIP
3 Credits
Explores business operations for the self-employed or as a manager employed in a small business enterprise.

BUS 204 - CASE PROBLEMS IN MANAGEMENT
3 Credits
Applies business concepts and principles to specific case studies or problems. Prerequisites: 15 credit hours, Business Management.

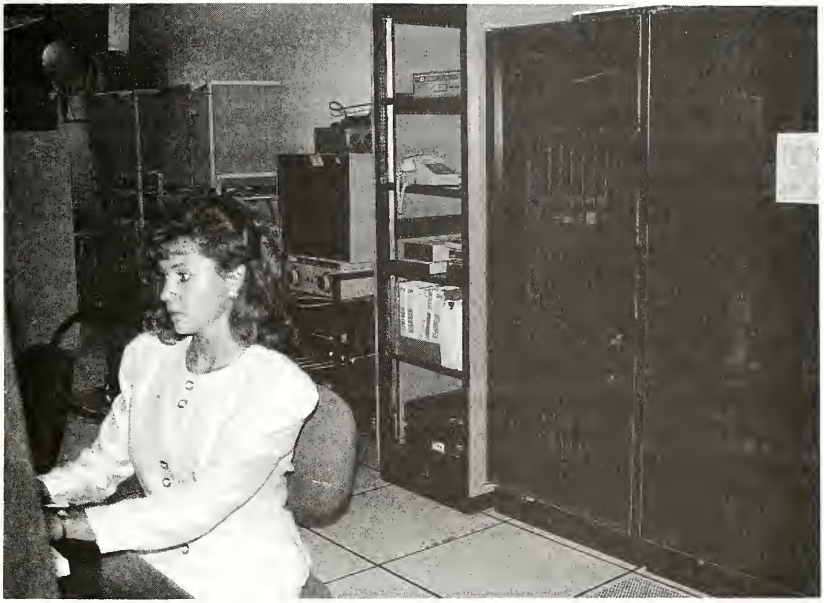
BUS 288 - INTRODUCTION TO TOTAL QUALITY MANAGEMENT
3 Credits
This introductory course is designed to teach the Deming philosophy of management. The course focuses on improving processes and reducing variation in systems. Students will learn management's role in improving every aspect of non-machine systems in order to achieve quality improvement.

MKT 101 - PRINCIPLES OF MARKETING
3 Credits
Introduces the marketing role in society and how it affects the marketing strategies, with emphasis on the marketing mix, product planning, and the effects of the demographic dimension on the consumer market.

DSM 101 - LOGISTICS/PURCHASING
3 Credits
This course introduces the student to purchasing logistics, customer services, materials management, and the physical distribution of goods.

CIS 101 - INTRODUCTION TO MICROCOMPUTERS
3 Credits
Introduces the physical components and operation of microcomputers. Focuses on computer literacy, and basic concepts of word processing, spreadsheets processing and database processing as examples of common microcomputer applications used in business.

ACC 101 - ACCOUNTING PRINCIPLES I
3 Credits
Introduces the fundamental principles, techniques, and tools of accounting. The mechanics of the accounting cycle include collecting, recording, summarizing, analyzing, and reporting of information pertaining to service and mercantile enterprises. Internal control, deferred charges, notes and interest, valuation of receivables, payrolls, inventories, and plant assets are also covered.



COMPUTER INFORMATION SYSTEMS TECHNOLOGY

According to business and government leaders, demand for trained computer professionals is increasing and job opportunities are projected to rise significantly during the 1990's. As a result, Ivy Tech has structured its computer curriculum to provide the student with a flexible, streamlined program which includes an excellent selection of courses for both mainframe and microcomputer applications.

Students enrolling in the program will have a choice of specializing in one of two program specialty areas: choosing either mainframe (programming) or microcomputers. Given this choice, the student will have an opportunity to focus on the technical education that will provide the skills they need as they pursue their educational goals.

Microcomputer applications is a user-oriented option with an emphasis on software applications within the business environment. Demand for employees with microcomputer hardware and software skills is particularly high in small and medium- sized firms which create, transmit, and control information utilizing the computer as a business tool.

The Associate of Applied Science degree is completed in 63 semester hours. Students may pursue selected courses only — in conjunction with another program of study or for career advancement.

Computer Information Systems Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(24 Credits)**
CIS	101	Introduction to Microcomputers	3
CIS	102	Data Processing Fundamentals	3
CIS	103	Logic and Documentation	3
CIS	107	Microcomputer Programming	3
CIS	202	Data Communications	3
CIS	203	Systems Analysis and Design	3
ACC	101	Accounting Principles I	3
BUS	101	Introduction to Business	3

AAS/General Education Requirements			**(18 Credits)**
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
SCI	101	Physical Science **or**	3
SCI	103	Physics	3
SOC	101	Human Relations	3
SOC	107	Principles of Microeconomics	3

Specialty - Programming			**(18 Credits)**
CIS	104	Introduction to COBOL Programming	3
CIS	105	Mini/Mainframe Operating Systems	3
CIS	204	Advanced COBOL Programming	3
CIS	213	Assembler Language Programming	3
CIS	xxx	Regionally Determined Elective	3
CIS	xxx	Regionally Determined Elective	3

Specialty - Microcomputer			**(18 Credits)**
May select from:			
CIS	106	Microcomputer Operating Systems	3
CIS	208	Electronic Spreadsheets	3
CIS	209	Computer Business Applications	3
CIS	223	Integrated Business Software	3
CIS	xxx	Regionally Determined Elective	3
CIS	xxx	Regionally Determined Elective	3

Student Electives	**(3 Credits)**
Total AAS Credits	**63**

COURSE DESCRIPTIONS

CIS 101 - INTRODUCTION TO MICROCOMPUTERS
3 Credits
Introduces the physical components and operation of microcomputers. Focuses on computer literacy, and basic concepts of word processing, spreadsheet processing and database processing as examples of common microcomputer applications used in business. Prerequisite 20 wpm typing skill.

CIS 102 - DATA PROCESSING FUNDAMENTALS
3 Credits
Introduction to data processing and programming, with emphasis on hands-on computer experience. Examines the role of data processing in an organization including: data processing applications, computer hardware and software, internal data representation, stored program concepts, systems and programming design, flowcharting, and data communications. Lab exercises include microcomputer applications and an introduction to computer programming using BASIC language.

CIS 104 - INTRODUCTION TO COBOL PROGRAMMING
3 Credits
An introduction to COBOL (Common Business Oriented Language) with emphasis on developing structured programming skills. Develops proficiency in applying the programming development cycle to elementary business problems. Prerequisite CIS 102.

CIS 103 - LOGIC AND DOCUMENTATION
3 Credits
Presents structured techniques for the efficient solution of business related computer programming logic problems. Includes program flowcharting, pseudocoding, and hierarchy charts as a means of solving these problems. Documentation procedures include creating file layouts, print charts, program narratives, user documentation, and system flowcharts for these business problems. Prerequisite CIS 102.

CIS 105 - 0PERATING SYSTEMS
3 Credits
A study of computer operating systems, purposes, structure and various functions. Covers comprehensive sets of language translators and service programs, operating under supervisory coordination of an integrated control, which form the total operating system of a computer. Prerequisite CIS 102 and CIS 104.

CIS 106 - MICROCOMPUTER OPERATING SYSTEMS
3 Credits
Introduces the organization, structure, and functions of an operating system for a microcomputer. Presents student with operating system concepts, such as commands, error messages, interrupts, function calls, device drivers, structure, files, and organization, with practical applications. Prerequisite CIS 101.

CIS 107 - MICROCOMPUTER PROGRAMMING
3 Credits
Introduces a structured microcomputer language. Concepts in input output commands, arithmetic expressions, conditional control, iteration techniques, and subroutines are emphasized. Offers application opportunities for solving business problems. Prerequisite CIS 102.

CIS 108 - PRACTICAL COMPUTER OPERATIONS
3 Credits
Demonstrates workstation and minicomputer operations including peripheral devices. Information is given on entire data processing area including job responsibilities, standards and run manuals, message control functions, documentation and backup procedures. Prerequisite CIS 102.

CIS 109 - UNIX V OPERATING SYSTEM
3 Credits
Studies the UNIX V Operating System and its use as a powerful time-sharing operating system. Includes basic UNIX commands, use of the visual editor, the UNIX directory structure and file management with SHELL commands. Offers opportunities to apply skills and knowledge in a laboratory environment. Prerequisite CIS 102 or equivalent.

CIS 110 - BASIC PROGRAMMING LANGUAGE
3 Credits
Provides an introduction to the basic concepts of program design and programming using the BASIC programming language. BASIC is the primary language for use with microcomputers. Some topics included are basic arithmetic operations, accumulating and printing totals, comparing, array processing and interactive programming. This course offers students an opportunity to apply skills in a laboratory environment. Prerequisite CIS 102 or equivalent.

CIS 204 - ADVANCED COBOL PROGRAMMING
3 Credits
Continues topics introduced in Introduction to COBOL with more logically complex business problems. Develops a higher level of COBOL proficiency as well as a greater familiarity with techniques and the structured approach through class instruction and laboratory experience. Prerequisite CIS 104 or equivalent.

CIS 202 - DATA COMMUNICATIONS
3 Credits
Introduces the concepts of data communications in order to build a foundation of knowledge on which to add the new technologies as they are developed. Prerequisite CIS 102.

CIS 203 - SYSTEMS ANALYSIS AND DESIGN
3 Credits
Provides instruction in creating or modifying a system by gathering details, analyzing the data, designing the system by creating solutions, and implementing and maintaining the system. Prerequisite CIS 102.

CIS 205 - DATABASE DESIGN
3 Credits
Introduces program applications in a database environment with emphasis on modifying and querying the database by means of a host language (COBOL). Discusses data structures; indexed and direct file organizations; models of data, including hierarchical, network, and relational; storage devices, data administration and analysis; design; and implementation. Prerequisite CIS 102.

CIS 206 - SYSTEMS DEVELOPMENT WITH HIGH - LEVEL TOOLS
3 Credits
Analyzes established and evolving methodologies for the development of business-oriented computer information systems. Develops competencies in techniques that apply modern software tools to generate applications directly, without requiring detailed and highly technical program writing efforts. Prerequisite CIS 104 or equivalent.

CIS 207 - MICROCOMPUTER DATABASE MANAGEMENT SYSTEMS
3 Credits
Presents an overview of relational, hierarchical and network database models with emphasis on microcomputer relational database management systems (DBMS). Using database software, students have hands-on experience creating, modifying, retrieving and reporting from databases. Students also develop business applications using the database language. Prerequisite CIS 101, recommend completion of CIS 102, 103.

CIS 208 - ELECTRONIC SPREADSHEETS
3 Credits
Presents an in-depth study of an electronic spreadsheet. Focuses on business applications using menu commands, formulas, functions, macro commands, graphs, printing, database, and file operations. Prerequisite CIS 101, recommend completion of CIS 102.

CIS 209 - COMPUTER BUSINESS APPLICATIONS
3 Credits
Advanced course in which the students apply business skills, microcomputer skills, and communication skills within business applications. Emphasis is placed on application of several forms of computerized information processing including data processing, word processing, spreadsheets, graphics, and communications. Students will also analyze the effects of automation on the office worker, management, and the work environment and prepare written and oral presentations. Prerequisite CIS 102, 202, 207, 208, ENG 101, recommend completion of CIS 203. (Information /Data Management Program Advisor signature required).

CIS 210 - COBOL III
3 Credits
Offers advanced study in COBOL programming, including programming with direct access devices and using the COBOL sort feature. Covers structured programming and documentation. Continues study of job control language. Prerequisite CIS 204.

CIS 211 - RPG II PROGRAMMING FUNDAMENTALS
3 Credits
Provides a general introduction to the RPG II programming language with emphasis on "hands on" experience. This course presents the most important features of the RPG II Language from input/output processing to applications requiring handling. Language concepts are introduced in class lecture and then applied by students in programming lab assignments. Prerequisite CIS 102.

CIS 212 - "C" PROGRAMMING
3 Credits
This course provides a basic understanding of the fundamental concepts involved when using a low level development language. The emphasis is on logical program decision using a modular approach involving task oriented program functions. The role of data types, storage classes and addressable memory locations is thoroughly discussed. Since C is a language quite unlike anything most students have been exposed to, the philosophy of this course is to provide a sound foundation of fundamental concepts such as the C function and the proper use of pointers. Prerequisite CIS 102 or equivalent.

CIS 213 - ASSEMBLER LANGUAGE PROGRAMMING
3 Credits
This course will give the student a very basic understanding of the Assembler process using IBM mainframe computers. This course will stress the importance of byte-wise manipulation of data fields when using low level languages. The emphasis is on the actual workings of a computer during the execution of a computer program. The role of data types, EBCIDIC format of data storage and addressable memory locations is thoroughly discussed. Since Assembler is so vastly different from most languages that students are exposed to, the philosophy of this course is to provide a sound foundation of fundamental concepts associated with the assembler process. Prerequisite CIS 102 or equivalent.

CIS 214 - PASCAL PROGRAMMING
3 Credits
This course provides a basic understanding of the structured programming process necessary for successful Pascal programming. The major emphasis is program design and modularity, using Pascal procedures, functions and independent subprograms. Simple and advanced data types are discussed as well as program control aids, algorithm development and program debugging. The goal of this course is to provide the student with a fundamental understanding of good programming technique in a basic knowledge of Pascal syntax and structure. Prerequisite CIS 102 or equivalent.

CIS 215 - FIELD STUDY
4 Credits
Provides opportunity for a field project or research case study within the Computer Technology field. The project or study will include collection and analysis of data and/or actual work experience in business or industry. Prerequisite is the permission of program advisor.

CIS 216 - ADVANCED RPG II PROGRAMMING
3 Credits
Offers advanced study in the use of the compiler language RPG II in solving business problems. Attention is given to the various file processing methods and a working knowledge of advanced features and techniques through laboratory experience. Prerequisite CIS 211.

CIS 217 - CICS COMMAND LEVEL PROGRAMMING
3 Credits
Familiarizes the student with CICS Command Level Programming Language, its organization and use, the principles of data communication, and the incorporation of these principles in CICS. Students will write pseudo-conversational CICS programs, then test and debug these programs. Prerequisite CIS 204 or permission of program advisor..

CIS 218 - ADVANCED ASSEMBLER LANGUAGE
3 Credits
Continues those topics introduced in Assembler Language Fundamentals with emphasis placed on table handling and disk programming techniques. Prerequisite CIS 213.

CIS 219 - ADVANCED CICS COMMAND LEVEL PROGRAMMING
3 Credits
Expands the student's knowledge of CICS Command Level programming language. Students will write pseudo-conversational CICS programs, then test and debug these programs. Prerequisite CIS 217.

CIS 220 - SHELL COMMAND LANGUAGE FOR PROGRAMMERS
3 Credits
This course teaches the student how to write, test and debug Shell procedures on a computer utilizing a UNIX operating system. Topics include: the Shell and how it works, shell processes, variables, keyword and positional parameters, control constructs, special substitutions, pipelines, debugging aids, error/interrupt processing and the shell command line. The course offers students the opportunity to apply skills in a laboratory environment. Prerequisite CIS 109.

CIS 221 - ADVANCED "C" LANGUAGE PROGRAMMING
3 Credits
Continues those topics introduced in C Language Programming with emphasis on array processing, file processing and advanced debugging techniques. Students will have the opportunity to apply skills in a laboratory environment. Prerequisite CIS 212.

CIS 222 - 0FFICE AUTOMATION
3 Credits
Presents a perspective on the needs, potentials, and urgencies of systems to support modern office functions. Concentration is on structured analysis and design of hardware/software systems for creating, maintaining, printing, and communicating data files utilizing text processing systems. Methodologies for creating procedures to produce letters and reports from data files are covered. Concepts and techniques will be incorporated into practical applications. Prerequisite: permission of program adivsor.

CIS 223 - INTEGRATED BUSINESS SOFTWARE
3 Credits
Presents knowledge of integrated microcomputer software concepts. Students will design a complete business system utilizing all parts of an integrated microcomputer software package which can share the same data, manipulating it in different ways. Projects will include usage of word processing, electronic spreadsheets, graphics, databases, and command language. Prerequisite: permission of program adivsor.

CIS 224 - HARDWARE AND SOFTWARE TROUBLESHOOTING
3 Credits
Presents an in-depth analysis of the components of a computer system and their relationship to each other. Includes concepts of parallel and serial connectivity, installation and maintenance of software, peripheral devices, interface cards, and device drivers. The student will analyze realistic hardware/software problems encountered in the workplace and learn techniques and procedures to implement solutions. Prerequisite: permission of program adivsor.

CIS 225 - ADVANCED DATABASE MANAGEMENT SYSTEMS
3 Credits
A continuation of CIS 201 Microcomputer Database Management Systems. Emphasis is the development of advanced applications in database management. Prerequisite CIS 207.

CIS 226 - ADVANCED ELECTRONIC SPREADSHEETS
3 Credits
A continuation of CIS 202 Electronic Spreadsheets. Emphasis is on the advanced application of electronic spreadsheets. Prerequisite CIS 202.

CIS 227 - TOPICS IN INFORMATION MANAGEMENT
3 Credits
Discusses topics of current interest in information management. Attention is given to special interest projects. Field trips, guest speakers, audio-visual activities, and seminars may be utilized. Program Advisor approval required. Note: This course will serve initially as an independent study project course for students needing to develop skills missed as a result of the quarter to semester transition.

CIS 228 - COOPERATIVE EDUCATION
1-9 Credits
This course is designed to give students the opportunity to apply concepts learned in the classroom to actual work situations. College credit is earned by satisfying both academic standards of the College and the work performance standards of the employer. (Program Advisor approval required).

CIS 229 - SEMINAR
1 Credit

CIS 230 - SEMINAR
1 Credit

CIS 281-193 - SPECIAL TOPICS IN CISORMATION/DATA MANAGEMENT TECHNOLOGY
1-5 Credits
A Special Topics Course provides students with the opportunity to experience seminars, workshops.

CIS 281-193 - SPECIAL TOPICS IN COMPUTER PROGRAMMING TECHNOLOGY
1-5 Credits

CULINARY ARTS TECHNOLOGY

Ivy Tech offers a comprehensive Culinary Arts program which will familiarize students with culinary styles and food preparation techniques of both outstanding chefs and experienced instructors. The program will provide students with numerous opportunities for actual food preparation experiences.

The Culinary Arts program covers food, beverages, menu planning, ethnic food preparation, classical cuisine, and pastries. Special attention is given to center-of-the plate items with emphasis on the presentation of prepared food. It also focuses on nutrition, sanitation, personal hygiene and safety regulations.

A two-year Associate of Applied Science degree is offered. Career Development Certificates are also available in specialized areas.

This program is accredited by the American Culinary Federation Inc.

Culinary Arts Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(55 Credits)**
CUL	101	Basic Foods Theory and Skills	3
CUL	102	Sanitation and First Aid	2
CUL	103	Nutrition	2
CUL	104	Soups, Stocks and Sauces	3
CUL	105	Institutional Food Service	2
CUL	106	Pantry and Breakfast	3
CUL	107	Purchasing Procedures and Controls	2
CUL	108	Baking	4
CUL	109	Meat Cutting	3
CUL	201	Food and Beverage Cost Control	2
CUL	202	Special Cuisines	3
CUL	203	Table Service	3
CUL	204	Classical Pastries	3
CUL	205	Fish and Seafood	3
CUL	206	Externship	3
CUL	207	Catering	4
CUL	208	Garde Manger	3
CUL	209	Menu Design	2
CUL	210	Food Service Supervision	2
CUL	211	Classical Cuisine	3

AAS/General Education Requirements			**(18 Credits)**
CIS	101	Introduction to Microcomputers	3
ENG	101	English Composition I	3
ENG	102	English Composition II	3
ENG	103	Speech	3
HST	115	Applied Behavioral Psychology or	
SOC	101	Human Relations	3
MAT	101	Algebra I or	
MAT	107	Math of Finance	3

Total AAS Credits **73**

COURSE DESCRIPTIONS

CUL 101 - BASIC FOODS THEORY AND SKILLS
3 Credits
Fundamentals of food preparation service procedures, sanitation and safety practices in the food service business. Also provides a background and history of the hospitality industry and introduction to hospitality/food service organizations and career opportunities.

CUL 102 - SANITATION & FIRST AID
2 Credits
Develops understanding of basic principles of food service sanitation and safety in maintaining a safe and healthy environment for the consumer. Laws and regulations related to safety, fire, and sanitation.

CUL 103 - NUTRITION
2 Credits
Examines characteristics, functions, and food sources of the major nutrient groups and how to maximize nutrient retention in food preparation and storage. Nutrient needs throughout the life cycle and related applications of menu planning and food preparation.

CUL 104 - SOUPS, STOCK, SAUCES
3 Credits
Introduces the four major stocks, five major sauces, and the soups that are derived from them. Time will be given to help develop the necessary skill development in the fourteen major cooking methods. Prerequisites CUL 102 AND 101.

CUL 105 - INSTITUTIONAL FOOD SERVICE
2 Credits
Introduction to various institutional food service facilities. Includes recipes for quantity, food production, calculating per portion cost, converting, determining profitable selling prices. Prerequisite CUL 104.

CUL 106 - PANTRY AND BREAKFAST
3 Credits
Techniques and skills needed in breakfast cookery and knowledge of the pantry department. Preparation of eggs, pancakes, waffles, and cereals. Experience in salad prep, salad dressing, hot and cold sandwich prep, garnishes and appetizers. Prerequisites CUL 101 and 102.

CUL 107 - PURCHASING PROCEDURES & CONTROLS
2 Credits
Development and implementation of an effective purchasing program. Focuses on supplier regulations and selection, negotiation, and evaluation. In-depth examination of major purchase categories.

CUL 108 - BAKING
4 Credits
Fundamentals of baking science, terminology, ingredients, weights and measures, formula conversion and storage. Preparation of yeast food, pies, cakes, cookies and quick breads. Use and care of equipment. Sanitation, hygienic work habits and conformance to health regulations are emphasized. Prerequisite CUL 102.

CUL 109 - MEAT CUTTING
3 Credits
The study of meat cutting which includes the breakdown of beef, pork, poultry, lamb and veal. Prerequisites CUL 101 and 102.

CUL 201 - FOOD & BEVERAGE COST CONTROL
2 Credits
Mathematical principles applied to the food service industry. Development of skills in food related tasks.

CUL 202 - SPECIAL CUISINES
3 Credits
Introduction to foods from various cultures: historical background and skill development in preparation of these foods. Further study of table service and table-side food preparation is included. Prerequisites CUL 101, 102 and 104.

CUL 203 - TABLE SERVICE
3 Credits
Practical knowledge of and skills in various types of service in a variety of operations. Relationship between "front" and "back" of the house. Emphasis is on the service techniques of the major table service styles.

CUL 204 - CLASSICAL PASTRIES
3 Credits
Classic French, Italian and European desserts. Includes the preparation of foods such as puff pastry, specialty cookies, ganache, parlimose creams and fillings, and specialty sauces. Emphasis is on size, consistency, presentation, eye appeal and taste of pastries produced. Prerequisite CUL 108.

CUL 205 - FISH AND SEAFOOD
3 Credits
The importance of fish and seafood in today's market. Types and categories of American and imported fish and shell fish, proper preparation, and merchandising of fish and boning and methods of cooking appropriate aquatic dishes. Prerequisites CUL 101, 102 and 104.

CUL 206 - EXTERNSHIP
3 Credits
Offers students practical work experience in chosen areas of specialization. Students will be required to work a minimum of 144 hours in an approved hospitality establishment. Emphasis is on skills at the dishwasher, prep-cook, and station cook. (4th semester of classes.)

CUL 207 - CATERING
4 Credits
The fundamentals of catering: the business of supplying food, goods, and organized service for public and private functions. Includes staffing, equipment, transportation, contracting, special arrangements, beverage service, and menu planning. Also covers cold food preparation and presentation techniques. (4th semester of classes).

CUL 208 - GARDE MANGER
3 Credits
Basic garde manger principles and functions and duties of the garde manger department as they relate to other kitchen operations. Introduction to specialty work: ice carving, artistic centerpieces, and buffet decorations. Proper equipment and garde manger area planning. Prerequisites CUL 106 and 109.

CUL 209 - MENU DESIGN
2 Credits
Develops skill needed for menu planning in various types of facilities and service. Covers menu layout, selection and development, and pricing structures. Prerequisite CUL 109.

CUL 210 - FOOD SERVICE SUPERVISION
2 Credits
Designed to prepare the student for the transition from employee to supervisor, evaluation of leadership styles and development of effective skills in human relations and personnel management.

CUL 211 - CLASSICAL CUISINE
3 Credits
Advanced and sophisticated classical culinary methods following the principles and techniques of Escoffier. Includes cooking techniques, timing, presentation, history, and terms pertaining to classical foods and menus, with emphasis on French cuisine. Practical experience in table service operation, kitchen coordination and timing. Prerequisites CUL 202, 204 and 205.

CUL 288 - SPECIAL TOPICS IN CULINARY ARTS TECHNOLOGY
1-5 Credits
A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Program Chairperson for more information).

DISTRIBUTION AND LOGISTICS

Distribution and Logistics Management prepares students for staff, first line or middle management positions in production control, physical distribution, purchasing, customer service, warehousing, transportation or planning and coordination functions dealing with the management, movement, storage, and control of materials. The major focus is on the integration of these activities and functions for cost effective and efficient operations.

Distribution and Logistics Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(30 Credits)**
DSM	101	Distribution and Logistics	3
DSM	201	Transportation Systems	3
DSM	202	Warehouse/Distribution Center Management	3
BUS	101	Introduction to Business	3
BUS	102	Business Law	3
BUS	201	Principles of Management	3
BUS	204	Case Problems in Management	3
ACC	101	Accounting Principles I	3
CIS	101	Introduction to Microcomputers	3
CIS	208	Electronic Spreadsheets	3

AAS/General Education Courses			**(15 Credits)**
ENG	101	English Composition I	3
ENG	102	English Composition II	3
ENG	103	Speech	3
MAT	101	Algebra	3
SOC	101	Human Relations	3

AAS/Regional Courses			**(15 Credits)**
May select from:			
MKT	101	Principles of Marketing	3
MKT	103	Principles of Retailing	3
IST	202	Production Planning and Control	3
MAT	108	Statistics	3
IST	211	Labor Relations	3
IST	103	Industrial Safety I	3

Students may select other courses with the approval of the program advisor.

Total AAS Credits **60**

COURSE DESCRIPTIONS

DSM 101 - DISTRIBUTION AND LOGISTICS
3 Credits
The foundation course for the study of the physical distribution of materials. Reviews basic physical distribution and logistics systems related to warehousing, materials handling, inventory control, order processing, and transportation.

DSM 201 - TRANSPORTATION SYSTEMS
3 Credits
Traffic and transportation management applied to rate negotiation, routing, risk and claims, expediting and tracing. Distinguishes between types of transportation operations, including rail, motor, water, air, and pipelines.

DSM 202 - WAREHOUSE/DISTRIBUTION CENTER MANAGEMENT
3 Credits
Examines the warehousing function and management system controls. Differentiates between the various inventory control systems. Reviews material handling methods for the preparation, placing, and positioning of materials to facilitate movement or storage. Focus is on computer utilization in warehousing and inventory control management.

ACC 101 - ACCOUNTING PRINCIPLES I
Introduces the fundamental principles, techniques, and tools of accounting. The mechanics of the accounting cycle include collecting, recording, summarizing, analyzing, and reporting of information pertaining to service and mercantile enterprises. Internal control, deferred charges, notes and interest, valuation of receivables, payrolls, inventories, and plant assets are also covered.

BUS 101 - INTRODUCTION TO BUSINESS
3 Credits
Examines our business system in relation to our economic society. Studies business ownership, organization principles and problems, management, control facilities, administration, and development practices of American business.

BUS 102 - BUSINESS LAW
3 Credits
Describes the Judicial system and the nature and sources of law affecting business. Studies contracts, sales, and negotiable instruments with emphasis on Uniform Commercial Code applications. Includes appropriate remedies for breach of contract and tort liabilities. Examines business structures.

BUS 201 - PRINCIPLES OF MANAGEMENT
3 Credits
Focuses on the functions of managers, including the management of activities and personnel. Focus is placed on application of guidance principles in management work.

BUS 204 - CASE PROBLEMS IN MANAGEMENT
3 Credits
Applies business concepts and principles to specific case studies or problems. Prerequisites: 15 credit hours, Business Management.

CIS 101 - INTRODUCTION TO MICROCOMPUTERS
3 Credits
Introduces the physical components and operation of microcomputers. Focuses on computer literacy, and basic concepts of word processing, spreadsheet processing, and database processing as examples of common microcomputer applications used in business. Prerequisite 20 wpm typing skill.

CIS 208 - ELECTRONIC SPREADSHEETS
3 Credits
Presents an in-depth study of an electronic spreadsheet. Focuses on business applications using menu commands, formulas, functions, macro commands, graphs, printing, database and file operations. Prerequisite CIS 101, recommend completion of CIS 102.

HOTEL/RESTAURANT MANAGEMENT

As the second fastest growing industry in Indiana, hospitality careers are on a rise. Ivy Tech, with guidance from the American Hotel and Motel Association and the National Restaurant Association, meets that demand by shaping the courses with input from hotel and restaurant management experts and prospective employers.

Ivy Tech has added a new Career Certificate program under the Hotel/ Restaurant Management program called Institutional Food Service Management. Individuals interested in this high demand field can earn a career certificate in less than a year. In addition, eligible students can go on to take the Dietary Manager's exam for Certification.

Hotel/Restaurant Management program is a two-time state award winner of the National Restaurant Association's "Award of Excellence in Food Service Education."

A two-year Associate of Applied Science degree requires 65 credits for completion.

Hotel and Restaurant Management
Associate of Applied Science Degree

AAS/Technical Core Courses			**(47 Credits)**
HMM	101	Hospitality Organization and Administration	3
HMM	102	Sanitation and First Aid	3
HMM	103	Purchasing Procedures and Controls	2
HMM	104	Hospitality Law and Security	3
HMM	105	Hospitality Computer Systems	3
HMM	106	Food Production Principles	3
HMM	107	Organization and Human Resource Development	3
HMM	201	Layout and Design	3
HMM	202	Hospitality Marketing and Sales	3
HMM	203	Practicum	3
HMM	204	Food and Beverage Management	3
HMM	205	Front Office	3
HMM	206	Housekeeping	3
HMM	207	Food and Beverage Cost Controls	3
CUL	203	Table Service	3
ACC	101	Accounting Principles I	3

AAS/General Education Requirements			**(18 Credits)**
ENG	101	English Composition I	3
ENG	102	English Composition II	3
ENG	103	Speech	3
HST	115	Applied Behavioral Psychology	3
MAT	101	Algebra I	3
SOC	104	Introduction to Sociology	3

Total AAS Credits **65**

Hotel and Restaurant Management
Institutional Food Service Management

Career Certificate			**(24 Credits)**
HMM	101	Hospitality Organization and Administration	3
HMM	102	Sanitation and First Aid	3
HMM	105	Hospitality Computer Systems	3
HMM	107	Organization and Human Resource Development	3
HMM	212	Nutrition I	3
HMM	215	Therapeutic Nutrition	3
HMM	216	Quality Food Production	3
HMM	203	Practicum	3
Total Career Certificate Credits			**2**

COURSE DESCRIPTIONS

HMM 101 - HOSPITALITY ORGANIZATION AND ADMINISTRATION
3 Credits
Analyzes management functions and responsibilities in administration, organization, communications, accounting, marketing, and human relations.

HMM 102 - SANITATION AND FIRST AID
3 Credits
Instruction in how to effectively manage sanitation to achieve high standards that will cause customers to return.

HMM 103 - PURCHASING PROCEDURES AND CONTROLS
2 Credits
Methods in the development and implementation of an effective purchasing program. Focuses on issues pertaining to supplier relations and selection, negotiation, and evaluation. Includes in-depth consideration of major categories of purchases.

HMM 104 - HOSPITALITY LAW AND SECURITY
3 Credits
Provides awareness of the rights and responsibilities that the law grants to, or imposes upon a hotel keeper, and illustrates the possible consequences of failure to satisfy legal obligations. Also examines the wide variety of security procedures and systems for guest protection and internal security for asset protection.

HMM 105 - HOSPITALITY COMPUTER SYSTEMS
3 Credits
An overview of the information needs of lodging properties and food service establishment. Addresses essential aspects of computer systems, such as hardware, software, and generic applications. Focuses on computer-based property management systems for both front and back office functions and on computer-based restaurant management systems for both service-oriented and management-oriented functions.

HMM 106 - FOOD PRODUCTION PRINCIPLES
3 Credits
Techniques and procedures of quality and quantity food production. Based upon principles of selection, composition, and preparation of the major food products. Includes an extensive set of basic and complex recipes for practice purposes.

HMM 107 - ORGANIZATION & HUMAN RESOURCE DEVELOPMENT
3 Credits
The assessment and analysis of training and non-training needs of organizations and personnel within the context of the basic evolution of a company. Also covers the systematic design of instruction, evaluation of training programs, and management of the training functions. Prepares an individual for the transition from employee to supervisor. Prerequisite HMM 101.

HMM 201 - LAYOUT AND DESIGN
3 Credits
Principles of selection, operation, and maintenance of equipment for hotels and restaurants. Covers materials, structural details, design, cost, performance and specifications.

HMM 202 - HOSPITALITY MARKETING AND SALES
3 Credits
Designed to provide students with basic knowledge and practical experience that will enable them to develop strategic marketing plans for various hotel properties.

HMM 203 - PRACTICUM
3 Credits
Provides students with practical work experience in chosen areas of specialization. Students are required to work a minimum of 144 hours under managers of selected hospitality establishments.

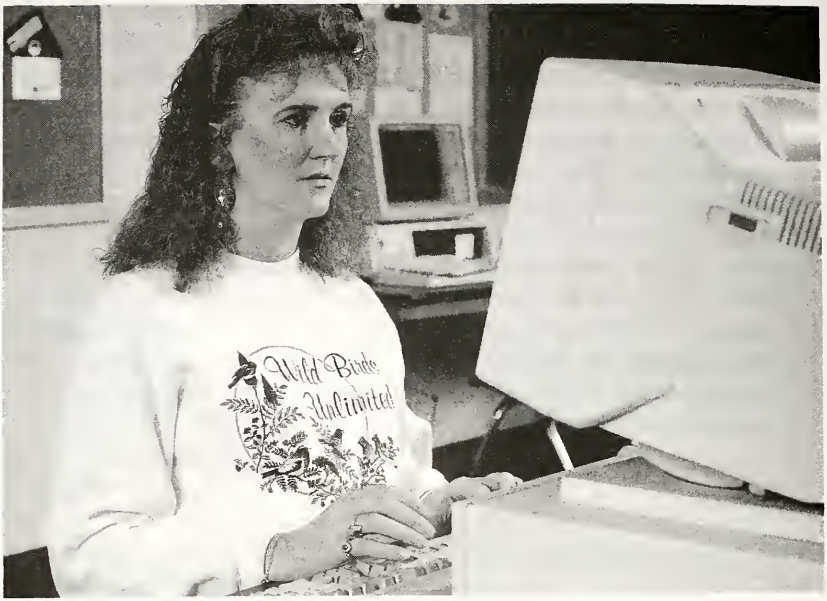
HMM 204 - FOOD AND BEVERAGE MANAGEMENT
3 Credits
Provides a basic understanding of the principles of food production and service management, reviewing sanitation, menu planning, purchasing, storage, and beverage management.

HMM 205 - FRONT OFFICE
3 Credits
A systematic approach to front office procedures, detailing the flow of business through a hotel, beginning with the reservation process and ending with billing and collection procedures within the context of the overall operation of a hotel. Examines front office management, the process of handling complaints, and concerns regarding hotel safety and security. Prerequisite HMM 105.

HMM 206 - HOUSEKEEPING
3 Credits
Provides an overview of the fundamentals of housekeeping management. Describes the management functions, tools, and practices required in modern lodging and institutional housekeeping departments.

HMM 207 - FOOD & BEVERAGE COST CONTROLS
3 Credits
Covers principles and procedures in an effective food and beverage control system, including standards determination, the operating budget, income and cost control, menu pricing, and computer applications. Prerequisite HMM 105.

HMM 211 - FINANCIAL MANAGEMENT
3 Credits
Special applications of accounting principles to the hospitality industry. Includes business principles pertaining to food and lodging, methods of record keeping for creditors, owners, and government, and payroll control. Emphasis is on tax laws specific to the industry, expense control, and techniques of profitable management.



INDUSTRIAL SUPERVISION TECHNOLOGY

The Industrial Supervision program prepares students for leadership responsibilities in first line, staff and middle management positions. Students learn how to develop goals and objectives, plan, organize, staff, direct and control operations in industrial, government and business environments.

A two-year program, requiring 60 credits, leads to an Associate of Applied Science degree. Career Development Certificates are also available in specialized areas.

Industrial Supervision Technology
Associate of Applied Science Degree

AAS /Technical Core Courses			**(30 Credits)**
IST	101	Quality Control Concepts and Techniques I	3
BUS	201	Principles of Management	3
IST	103	Industrial Safety I	3
BUS	288	Introduction to Total Quality Management	3
BUS	102	Business Law	3
ACC	101	Accounting Principles I	3
CIS	101	Introduction to Microcomputers	3
BUS	202	Human Resource Management	3
IST	202	Production Planning and Control	3
IST	211	Labor Relations	3

AAS/General Education Requirements			**(18 Credits)**
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
MAT	108	Statistics	3
SOC	101	Human Relations	3
SOC	106	Principles of Macroeconomics	3

AAS/Regional Courses			**(12 Credits)**
May select from:			
CIS	206	Integrated Business Software	3
MKT	101	Marketing	3
BUS	101	Introduction to Business	3
BUS	204	Case Studies	3
DSM	101	Logistics/Purchasing Control	3
MKT	104	Advertising	3
MKT	204	Marketing Management	3
MKT	201	Introduction to Market Research	3
DSM	202	Warehouse/Distribution Management	3

Students may select other courses with the approval of the program advisor.

Total AAS Credits **60**

COURSE DESCRIPTIONS

IST 101 - QUALITY CONTROL CONCEPTS AND TECHNIQUES I

3 Credits

Covers current quality control concepts and techniques in industry, with emphasis on modern manufacturing requirements.

BUS 201 - PRINCIPLES OF MANAGEMENT

3 Credits

Focuses on the functions of managers, including the management of activities and personnel. Focus is placed on application of guidance principles in management work.

IST 103 - INDUSTRIAL SAFETY I

3 Credits

Covers the day-to-day responsibilities of management and supervision toward attaining an accident-free organization. Emphasizes first aid, fire prevention and control, safety procedures in starting and stopping machines, accident investigations, and other preventive measures. Also covers methods of advertising good safety practices, rules of plant protection in relation to safety and OSHA.

BUS 288 - INTRODUCTION TO TOTAL QUALITY MANAGEMENT

3 Credits

This introductory course is designed to teach the Deming philosophy of management. The course focuses on improving processes and reducing variation in systems. Students will learn management's role in improving every aspect of non-machine systems in order to achieve quality improvement.

BUS 102 - BUSINESS LAW

3 Credits

Describes the Judicial system and the nature and sources of law affecting business. Studies contracts, sales, and negotiable instruments with emphasis on Uniform Commercial Code applications. Includes appropriate remedies for breach of contract and tort liabilities. Examines business structures and agency.

ACC 101 - ACCOUNTING PRINCIPLES I

3 Credits - Introduces the fundamental principles, techniques, and tools of accounting. The mechanics of the accounting cycle include collecting, recording, summarizing, analyzing, and reporting of information pertaining to service and mercantile enterprises. Internal control, deferred charges, notes and interest, valuation of receivables, payrolls, inventories, and plant assets are also covered.

CIS 101 - INTRODUCTION TO MICROCOMPUTERS
3 Credits
Introduces the physical components and operation of microcomputers. Focuses on computer literacy, and basic concepts of word processing, spreadsheets processing and database processing as examples of common microcomputer applications used in business.

BUS 202 - HUMAN RESOURCE MANAGEMENT
3 Credits
Overview of the activities of human resource manager with emphasis on employer-employee relations, job analysis and evaluation, salary administration, work measurement and standards, performance appraisal, legal compliance, and Total Quality Management as applied to HRM. (Prerequisite: BUS 201)

IST 202 - PRODUCTION PLANNING AND CONTROL
3 Credits
Production planning concepts and inventory control techniques and applications. Areas of concentration include the production function, design, and development of products/services, location and layout, forecasting and scheduling, materials purchasing and inventory management, and quality control.

IST 211 - LABOR RELATIONS
3 Credits
Examines labor laws and practices pertaining to industrial relations. Covers development and applications of laws, mediation conciliation, collective bargaining, arbitration, and handling of grievances.

MARKETING TECHNOLOGY

The Marketing Technology program offers extensive business training to prepare the student for employment opportunities in marketing operations and management. Courses include marketing, management, sales techniques, retailing, advertising, accounting, mathematics and communications.

Career opportunities may be found in management, advertising, distribution, professional sales, retailing, wholesaling, merchandising and market research for employment in profit as well as in non-profit organizations.

A two-year program, requiring 60 credits, leads to an Associate of Applied Science degree. Career Development Certificates are also available in specialized areas.

Marketing Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(33 Credits)**
BUS	101	Introduction to Business	3
MKT	101	Principles of Marketing	3
MKT	102	Principles of Selling	3
MKT	103	Principles of Retailing	3
MKT	104	Advertising	3
MKT	201	Introduction to Market Research	3
DSM	101	Logistics/Purchasing Control	3
MKT	204	Marketing Management	3
ACC	101	Accounting Principles I	3
BUS	201	Principles of Management	3
BUS	102	Business Law	3

AAS/General Education Requirements			**(18 Credits)**
SOC	107	Principles of Microeconomics	3
ENG	101	English Composition	3
ENG	103	Speech	3
MAT	101	Algebra I	3
CIS	101	Introduction to Microcomputers	3
SOC	101	Human Relations	3

AAS/Regional Courses			**(9 Credits)**
May select from:			
BUS	202	Human Resource Management	3
BUS	203	Entrepreneurship	3
CIS	208	Electronic Spreadsheets	3
BUS	288	Introduction to Total Quality Management	3
AOT	103	Information/Word Processing Concepts	3
BUS	204	Case Problems in Management	3

Students may select other courses with the approval of the program advisor.

Total AAS Credits **60**

COURSE DESCRIPTIONS

BUS 101 - INTRODUCTION TO BUSINESS
3 Credits
Examines our business system in relation to our economic society. Studies business ownership, organization principles and problems, management, control facilities, administration, and development practices of American business.

MKT 101 - PRINCIPLES OF MARKETING
3 Credits
Introduces the marketing role in society and how it affects the marketing strategy, with emphasis on the marketing mix, product planning, and the effects of the demographic dimension on the consumer market.

MKT 102 - PRINCIPLES OF SELLING
3 Credits
Provides an overview of selling and the selling process. Includes the psychology of selling and develops selling skills through a series of selling situations.

MKT 103 - PRINCIPLES OF RETAILING
3 Credits
Studies retailing concepts and practices, including retail merchandise planning, buying, pricing, promotion, and control in established retail operations. Attention is given to managerial and operational skills.

MKT 104 - ADVERTISING
3 Credits
Focuses on advertising as the key element in the promotion of goods and services in the marketplace. Attention is given to advertising media and media selection, advertising copy strategy, advertising regulations and organizations of advertising functions.

MKT 201 - INTRODUCTION TO MARKET RESEARCH
3 Credits
Applies basic research methods entailing procedures, questionnaire design, data analysis, and effectively communicating research results.

DSM 101 - LOGISTICS/PURCHASING CONTROL
3 Credits
This course introduces the student to the framework of logistics, the logistics environment, customer services and materials management. Subjects of current interest, to include material resources planning (MRP) and just-in-time (JIT) principles, are also introduced.

MKT 204 - MARKETING MANAGEMENT
3 Credits
Focuses on the analysis, implementation, and control of marketing strategy. Emphasis is placed on the major decisions management faces in its effort to harmonize the objectives and resources of the organization with the needs and opportunities of the marketplace.

ACC 101 - ACCOUNTING PRINCIPLES 1
3 Credits
Introduces the fundamental principles, techniques, and tools of accounting. The mechanics of the accounting cycle include collecting, recording, summarizing, analyzing, and reporting of information pertaining to service and mercantile enterprises. Internal control, deferred charges, notes and interest, valuation of receivables, payrolls, inventories, and plant assets are also covered. Marketing, and human relations and other instructional activities on topics of interest that reinforce the concepts presented in their program area .

BUS 201 - PRINCIPLES OF MANAGEMENT
3 Credits
Focuses on the functions of managers, including the management of activities and personnel. Focus is placed on application of guidance principles in management work.

BUS 102 - BUSINESS LAW
3 Credits
Describes the Judicial system and the nature and sources of law affecting business. Studies contracts, sales, and negotiable instruments with emphasis on Uniform Commercial Code applications. Includes appropriate remedies for breach of contract and tort liabilities. Examines business structures and agency.

PARALEGAL TECHNOLOGY

The demand for trained paralegals is increasing and the number of job opportunities is projected to increase significantly by the mid-1990's according to employment analysts.

Indiana Vocational Technical College recognizes this demand and has shaped a curriculum with input from attorneys and professionals within the legal community.

Ivy Tech offers a curriculum designed to establish the qualifications necessary for success in the paralegal field. Ivy Tech's courses provide trained, knowledgeable paralegal professionals ready for an exciting career as part of a legal team. The duties of trained paralegal specialists can range from assisting in legal research to managing witnesses and exhibits for trials to drafting and editing legal documents. Our educational training provides a wide variety of skills necessary for job opportunities and career mobility. Courses are taught by attorneys with practical experience, who combine classroom lecture with hands-on practical training in such areas as civil law, real estate, research and writing, and wills and trusts.

This program requires 75 credits for completion and results in an Associate of Applied Science degree.

Paralegal Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(51 Credits)**
LEG	101	Introduction to Paralegal Studies	3
LEG	102	Legal Research and Writing	4
LEG	103	Civil Procedures	3
LEG	104	Torts	3
LEG	105	Business Associations	3
LEG	106	Claims Investigation	3
LEG	107	Contracts and Commercial Law	3
LEG	108	Property Law	3
LEG	109	Family Law	3
LEG	110	Wills, Trusts and Probate	3
LEG	111	Criminal Law and Procedure	3
LEG	112	Bankruptcy Law	3
LEG	201	Appellate Procedure	2
LEG	202	Litigation	3
LEG	203	Computers in the Law Office	3
ACC	108	Career Essentials of Accounting	3
AOT	103	Information/Word Processing Concepts	3

AAS/General Education Courses			**(18 Credits)**
ENG	101	English Composition I	3
ENG	102	English Composition II	3
SOC	101	Human Relations	3
MAT	107	Math of Finance	3
CIS	101	Introduction to Microcomputers	3
SCI	xxx	Life and Physical Science Elective	3

AAS/Regional Courses **(6 Credits)**
May select from:

ENG	103	Speech	3
CIS	208	Electronic Spreadsheets	3
SOC	102	Introduction to Psychology	3
SOC	105	Introduction to Political Science	3

Students may select other courses with approval from the program advisor.

Total AAS Credits **75**

COURSE DESCRIPTIONS

LEG 101 — INTRODUCTION TO PARALEGAL STUDIES
3 Credits
Introduces the student to the general concepts of the legal and paralegal fields. Topics include the American legal system, legal analysis, the legal profession, the paralegal's role in the provision of legal services, legal terminology, law office ethics and the Code of Professional Responsibility.

LEG 102 — RESEARCH AND WRITING
4 Credits
The study and use of legal research tools such as digests, loose leaf services, reporters, statutory compilations and form books. Legal writing format and methodology are presented through practical application in drafting memoranda and correspondence. Shepardizing and proper case citation skills are included.

LEG 103—CIVIL PROCEDURES
3 Credits
The study of Indiana Trial Rules and miscellaneous local rules. Filing requirements, computation of time and form drafting are emphasized.

LEG 104 — TORTS
3 Credits
A survey of intentional torts, negligence and strict liability. Emphasizes the elements of tort causes of action and the rules of damages.

LEG 105 — BUSINESS ASSOCIATIONS
3 Credits
The study of various business structures and the rights, duties, liabilities and formalities attendant to such structures. A survey of partnership, agency and corporation law is included.

LEG 106 — CLAIMS INVESTIGATION
3 Credits
The study of witness interview techniques, preservation of evidence, organizational skills and alternative methods of gathering facts. Client intake procedure and communication skills are emphasized.

LEG 107 — CONTRACTS AND COMMERCIAL LAW
3 Credits
A survey of contract law and the Uniform Commercial Code. Topics include scope of law, contract formation, capacity to contract, and contract enforceability.

LEG 108 — PROPERTY LAW
3 Credits
A survey of the law of real estate and personal property. Provides practical exposure to title searches, loan documentation, zoning requirements, financing statements, leases and deeds.

LEG 109 — FAMILY LAW
3 Credits
A survey of the law of marriage, dissolution of marriage, custody, child support and visitation, and adoption. Financial declaration forms, client intake skills, Child Support Guidelines and available social services are presented.

LEG 110 — WILLS, TRUSTS, AND PROBATE
3 Credits
A survey of the law of estates, wills, probate and guardianship, as well as intestate succession. Preparation of probate and administration forms, asset inventories and valuation, certain tax forms and accounting are included.

LEG 111 — CRIMINAL LAW AND PROCEDURES
3 Credits
A survey of Indiana criminal statutes and selected federal criminal statutes. Investigative and administrative skills are emphasized.

LEG 112 — BANKRUPTCY LAW
3 Credits
A survey of the Federal Bankruptcy Act. Emphasizes skills needed to accumulate personal financial information, compile initial schedules, collect and organize data for first meeting of creditors, complete proofs of claim and pursue creditor's rights.

LEG 201 — APPELLATE PROCEDURE
2 Credits
In-depth study of the Indiana Rules of Appellate Procedure, with concentration on the mechanical aspects of preparation and filing of the records on appeal and the format required for briefs. (Prerequisites LEG 102 and 103)

LEG 202 — LITIGATION
3 Credits
The study of the Indiana Rules pertaining to actual trial. The discovery process and its tools are reviewed. Skills such as document organization and retrieval, witness statement and deposition summarizing, indexing and scheduling are presented. Trial notebook preparation is included for practical experience. (Prerequisite LEG 103)

LEG 203 — COMPUTERS IN THE LAW OFFICE
3 Credits
A survey of software support available to the law practitioner such as litigation support and estate planning support. The course also includes a comparative study of the manual systems for similar procedures, such as docket and conflict control, file organization, research organization, and handling of client funds. Also includes hands-on instruction on Dialog and Westlaw computerized research services. (Prerequisites LEG 102 and CIS 101)

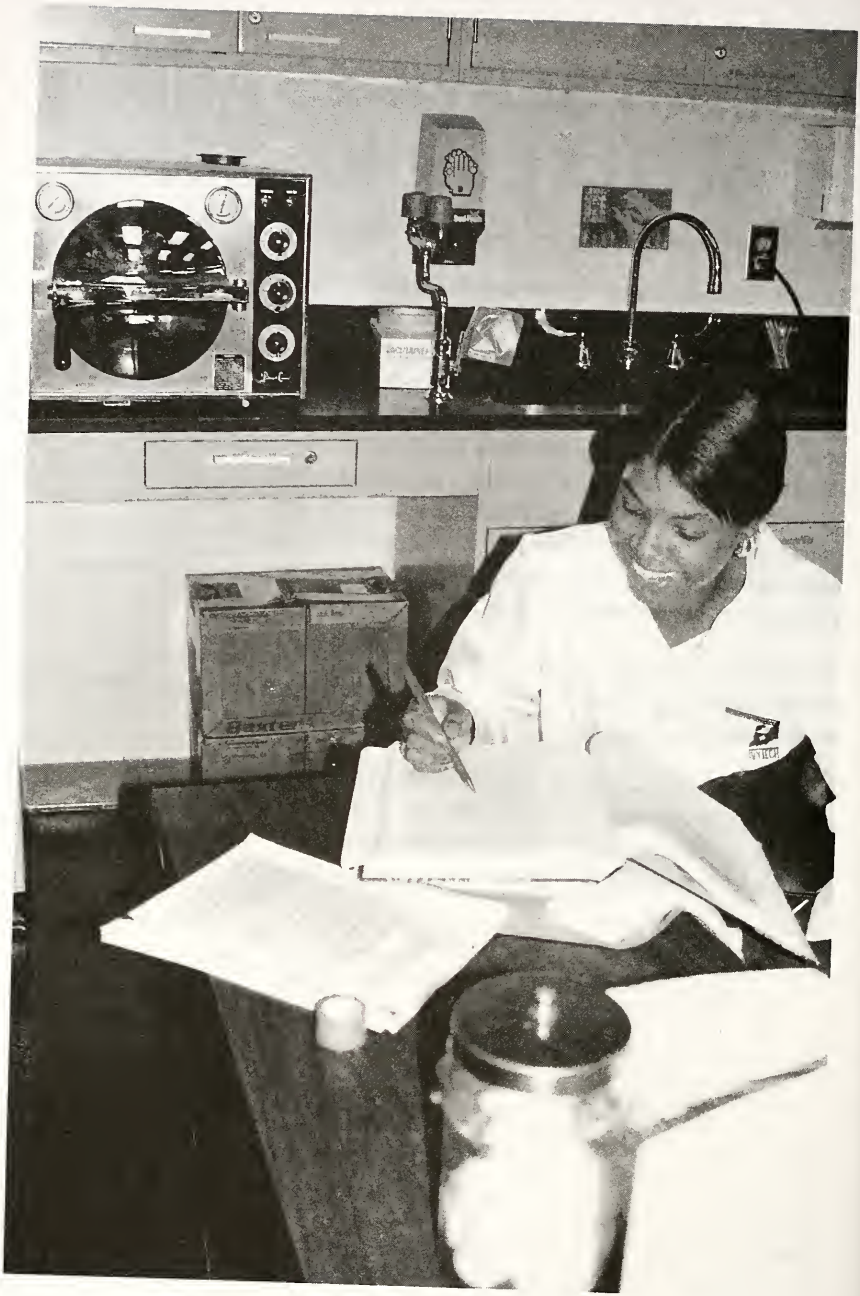
LEG 288 - SPECIAL TOPICS IN PARALEGAL TECHNOLOGY
1-5 Credits
A Special Topics Course provides students with the opportunity to experience internships, seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area.

HUMAN SERVICES AND HEALTH TECHNOLOGIES

The Division of Human Services and Health Technologies responds to the increasing employment opportunities in the expanding human services and health care fields. Ivy Tech prepares competent graduates to become members of human or social service and health care teams. Classrooms, laboratory, and clinical or practicum experiences each prepare students for entry-level or continuing service in social service settings, hospitals, laboratories, extended care facilities, child care centers, physicians' offices, and other human service and health care organizations. Clinical and practicum courses are required as a substantial element, up to 48% of the total contact hours in some programs. These experiences help develop a student's new knowledge and skills.

The College's Human Services and Health Technologies programs are recognized and accredited by appropriate state and national organizations which provide certification and registration for graduates.

Applicants are encouraged to apply to the programs in the division early, preferably six to nine months before the start of a semester. A number of courses in selected programs can be taken along with developmental courses, if they are indicated by the assessment evaluation.



ASSOCIATE OF SCIENCE NURSING

The Indianapolis district is approved by the Commission for Higher Education and the Indiana State Board of Nursing to offer a two-year Associate of Science (AS) nursing program. Graduates of this program are eligible to write the NCLEX-RN examination to become Registered Nurses. This program accommodates both students interested in nursing as a career and Licensed Practical Nurses choosing to continue their nursing education.

ADMISSION CRITERIA

FOR COLLEGE ADMISSION:
- **Certificate of High School Graduation or GED**
- SAT or ACT Scores* or College Assessment**

FOR ASN ADMISSION:
- **PSB Nursing School Aptitude Exam**

FOR LPNS:
- **NLN Mobility Exam #I**

* Test may be waived by college transcript with grades of "C" or better within past 10 years for required science courses.

** Test may be waived by college level course in English Composition, Science and Math with passing grades of "C" or better within past 10 years.

FOR ALL NURSING STUDENTS:

Physical health form and immunizations completed prior to registration for any clinical course.

GENERAL EDUCATION COURSES

Anatomy and Physiology	8 - 10 credits
General Psychology	3 credits
Developmental Psychology	3 credits
English Composition	3 credits
Sociology	3 credits
Microbiology	4 credits
Approved Elective	2 credits
TOTAL	**28 credits**

NURSING COURSES

NUR 101 FUNDAMENTAL NURSING CONCEPTS	
NUR 102 FUNDAMENTAL PRACTICUM	8 credits
NUR 103 LIFE CYCLE IA & IB NURSING	
NUR 104 LIFE CYCLE IA & IB PRACTICUM	8 credits
NUR 201/203 LIFE CYCLE II NURSING	
NUR 202/204 LIFE CYCLE II PRACTICUM I	10 credits
NUR 203/201 LIFE CYCLE III NURSING	
NUR 204/202 LIFE CYCLE III PRACTICUM	10 credits
NUR 205 ISSUES IN NURSING	2 credits
TOTAL	**38 credits**

NLN TESTING AND TRANSITION COURSES~ REQUIRED FOR LPNS:

NUR 105 NLN MOBILITY EXAM	
NUR 106 TRANSITION	
NUR 107 TRANSITION PRACTICUM	
NUR 199 SKILL REVIEW	16 credits
NUR 201/203 LIFE CYCLE II NURSING	
NUR 202/204 LIFE CYCLE II PRACTICUM	10 credits
NUR 203/201 LIFE CYCLE III NURSING	
NUR 204/202 LIFE CYCLE III PRACTICUM	10 credits
NUR 205 ISSUES IN NURSING	2 credits
TOTAL:	**38 credits**

COURSE DESCRIPTIONS

NUR 101- FUNDAMENTAL NURSING CONCEPTS
4 Credits
Introduces the role of the associate degree nurse, and the facts, concepts, and principles underlying the nursing process. Emphasizes physical and psychosocial assessment. Identifies current trends in the health care delivery system. Identifies the components of the program philosophy, conceptual framework, and terminal objectives.

NUR 102 - FUNDAMENTAL NURSING CONCEPTS PRACTICUM
4 Credits
Provides campus and clinical laboratory experience to utilize the role of the associate degree nursing student employing the nursing process. Simulated/actual client care provides opportunity to develop assessment skills and to initiate beginning level of analyzing, planning, implementing and evaluating therapeutic measures.

NUR 103 LIFE CYCLE IA NURSING
2 Credits
Examines the role of the associate degree nurse in providing care to children through adolescence. The nursing process is utilized to comprehend the assessment, planning, implementation, and evaluation of therapeutic measures that promote, maintain, and/or restore the health of the young. (This course parallels the pediatric elements of NUR 103.)

NUR 103 LIFE CYCLE IB NURSING
2 Credits
Examines the role of the associate degree nurse in prioritizing human responses which interfere with basic needs contributing to the child-bearing process. The nursing process is employed to promote, maintain, and/or restore obstetrical health. (This course parallels the obstetrical elements of NUR 103.)

NUR 104 LIFE CYCLE IA NURSING PRACTICUM
2 Credits
Provides clinical opportunity for demonstration and evaluation of personal effectiveness in fulfilling the role of the associate degree nursing students in assisting children in meeting their needs. (This course parallels the pediatric elements of NUR 104.)

NUR 104 LIFE CYCLE IB NURSING PRACTICUM
2 Credits
Provides clinical experience to demonstrate the role of the associate degree nursing student in providing care to the child bearing family. Nursing skills are based on identified scientific facts, concepts and principles. Decision-making and appropriate therapeutic communications are emphasized. (This course parallels the maternal/child health elements of NUR 105.)

NUR 105 - NLN MOBILITY PROFILE I, BOOK I (LPNS ONLY)
5 Credits
Evaluates previous learning and experience to facilitate educational mobility.

NUR 106 -TRANSITION TO ASSOCIATE DEGREE NURSING (LPNS ONLY)
5 Credits
Socializes the LPN into the role of the associate degree nurse. Identifies the role of the associate degree nurse in assisting people in meeting their needs during the child-bearing process through adolescence. The nursing process is utilized to promote, maintain and/or restore health.

NUR 107 - PRACTICUM: TRANSITION TO ASSOCIATE DEGREE NURSING (LPNS ONLY)
3 Credits
Provides campus and clinical laboratory experience to function in the role of the associate degree nursing student in providing care to clients during the child-bearing process through adolescence. The nursing process is employed to provide quality nursing care.

NUR 110 TRANSITION TO ASSOCIATE DEGREE NURSING (LPNS ONLY)
5 Credits
Socializes the LPN into the role of the associate degree nurse. Identifies the role of the associate degree nurse in assisting adults in meeting their physical illness and multiple health care needs. The nursing process is utilized to promote, maintain, and/or restore health.

NUR 111 PRACTICUM: TRANSITION TO ASSOCIATE DEGREE NURSING (LPNS ONLY)
3 Credits
Provides campus and clinical laboratory experience to function in the role of the associate degree nursing student in providing care to adults with physical illness and multiple health care needs. The nursing process is utilized to provide quality nursing care.

NUR 199 COMPETENCE SKILL REVIEW
3 Credits
Includes but is not limited to demonstration of specific procedures by faculty or other personnel, student laboratory practice, return demonstration of specific skill by the student and the viewing of AV aids pertinent to the clinical setting.

NUR 201/203 LIFE CYCLE II NURSING
NUR 201 3 Credits AND NUR 203
2 Credits
Identifies the role of the associate degree nurse in assisting people in meeting their adult physical illness needs and prioritizing human responses which interfere with basic needs contributing to physical illness and the management of multiple health care needs. The nursing process is utilized to comprehend the assessment, planning, implementation, and evaluation of therapeutic measures that promote, maintain, and/or restore health. (This course combines the medical/surgical conceptual elements now in NUR 201 and NUR 203.)

NUR 202/204 LIFE CYCLE II NURSING PRACTICUM
NUR 202 3 Credits AND NUR 204
2 Credits
Provides campus and clinical laboratory experiences enabling associate degree nursing students to plan and provide care for adult clients with physical illness needs. The nursing process is employed to promote, maintain, and/or restore health while providing quality nursing care. (This course combines the medical/surgical campus and clinical laboratory experiences for the care of adult patients now covered in NUR 202 and NUR 204.)

NUR 201 LIFE CYCLE III NURSING
2 Credits
Examines the role of the associate degree nurse in prioritizing human responses which interfere with basic needs contributing to psychosocial illness. The nursing process is employed to promote, maintain, and/or restore psycho/social health. (This course parallels the psychological elements of NUR 201).

NUR 202 LIFE CYCLE III NURSING PRACTICUM
2 Credits
Provides clinical experience to demonstrate the role of the associate degree nursing student in providing care to clients psychosocial health. Nursing skills are based on identified scientific facts, concepts and principles. Decision-making and appropriate therapeutic communications are emphasized. (This course parallels the psychosocial illness elements of NUR 202.)

NUR 203 LIFE CYCLE III NURSING
3 Credits
Examines the role of the associate degree nurse in providing care to older adults. The nursing process is utilized to comprehend the assessment, planning, implementation, and evaluation of therapeutic measures that promote, maintain, and/or restore the health of elderly clients. (This course parallels the gerontological concepts of NUR 203.)

NUR 204 LIFE CYCLE III NURSING PRACTICUM
2 Credits
Provides clinical opportunity for demonstration and evaluation of personal effectiveness in fulfilling the role of the associate degree nursing students in assisting older adults in meeting their needs. (This course parallels the gerontological concepts of NUR 204.)

NUR 205 - ISSUES IN NURSING
2 Credits
Examines issues and nursing's responsibility to meet changing needs of persons in their environment. Historical aspects, current developments, future trends, improvement of nursing practice, legal/ethical considerations, and personal/professional growth are integrated into the examination of the role of the associate degree nurse.

CHILD DEVELOPMENT

The Child Development program focuses on early childhood growth and development, including adult-child relationships. Emphasis is placed on the development of skills and techniques for providing appropriate environments and care for young children. Instruction is provided in the physical, emotional, social, and cognitive areas of early childhood. The training is appropriate for candidates seeking the Child Development Associate (CDA) credential. The student develops competencies through classroom instruction, observation, and participation in early childhood settings.

Ivy Tech-Indianapolis has an on-campus Child Development Center to meet the need of adult students, College staff and faculty, and locally employed parents and guardians. This licensed center provides on-site training opportunities for practicum students in the Child Development and other Human Services and Health Technologies programs. This model facility is licensed to serve 60 children, ages 2 to 12, from 6:30 a.m. to 10:00 p.m., Monday through Thursdays and until 6:00 p.m. on Friday. The center is open to visitors interested in either the Child Development Program or the Child Development Center services except during naptime, which is 12:30 to 2:30 p.m. daily. Visitors should check with the Center Manager upon arrival. Fee information is available.

Employment opportunities include: Day Care, Nursery School, Head Start, Family Day Care, Pediatrics Setting, Nanny Care, and School Child Care.

Human Services Program
Child Development
Technical Certificate and Associate of Applied Science Degree

AAS/Technical Core Courses			**(44 Credits)**
***Technical Certificate**			**(27 Credits)**
*CHD	101	Introduction to Early Childhood Education **OR** CHD 210, or CHD 211, or CHD 213	4
CHD	112	Child Growth and Development II	3
*CHD	103	Health, Safety and Nutrition	3
*CHD	104	Practicum I	3
*CHD	105	Seminar I	2
*CHD	108	Curriculum I	4
*CHD	203	Practicum II	3
*CHD	204	Seminar II	2
*CHD	205	Children's Literature and Language Arts	3
CHD	206	Early Childhood Administration	3
CHD	207	Practicum III	3
CHD	208	Seminar III	2
HST	101	Introduction to Human Services	3
HST	102	Helping Techniques	3
HST	103	Interviewing and Assessment	3
HST	205	Behavioral Reality Techniques or CHD 102, or CHD 212	3
HST	206	Group Process and Skills	3

AAS/General Education Requirements			**(18 Credits)**
***Technical Certificate**			**(3 Credits)**
ENG	101	English Composition I	3
ENG	103	Speech	3
MAT	107	Math of Finance	3
SOC	102	Introduction to Psychology	3
*SOC	104	Introduction to Sociology	3
SOC	105	Introduction to Political Science	3

AAS/Regional Courses	**(6 Credits)**
***Technical Certificate**	**(3 Credits)**

See Program Advisor for Regional Course selection.

Total AAS Credits	**68**
***Total Technical Certificate Credits**	**33**

COURSE DESCRIPTIONS

CHD 101 - INTRODUCTION TO EARLY CHILDHOOD EDUCATION
4 Credits
A basic introduction to philosophy of early childhood education. Includes theories of discipline, parent involvement, self-concept, and an overview of various early childhood settings, field trips, and observation.

CHD 102 - CHILD GROWTH AND DEVELOPMENT I
3 Credits
Introductory study of the physical, social, emotional and cognitive development of the young child, conception to age three, as well as quality care and education of toddlers. (Lecture and observation.)

CHD 103 - HEALTH, SAFETY AND NUTRITION
3 Credits
Analysis of basic safety, health, and nutrition needs. Applications as they relate to early childhood programs are emphasized.

CHD 104 - PRACTICUM I
3 Credits
Provides opportunity for practical experience through observation and supervised participation in child care settings. Successful completion of the practicum is required to advance to Practicum II and III.

CHD 105 - SEMINAR I
2 Credits
Companion course to Practicum I. Overview of Child Development Associate (CDA) competencies and observation techniques and skills.

CHD 108 - CURRICULUM I
4 Credits
Examines materials, methods, and teaching for providing creative experiences for the young child. Offers music, movement, art, drama, etc., experiences for use in early childhood settings. Reviews theories of development of the young child.

CHD 112 - CHILD GROWTH AND DEVELOPMENT II
3 Credits
A lecture/laboratory course studying the physical, social, emotional, and cognitive development of the young child, 3-8 years.

CHD 203 - PRACTICUM II
3 Credits
Provides opportunity for practical experience through observation and supervised participation in child care settings. Successful completion of the practicum is required to advance to Practicum 3.

CHD 204 - SEMINAR II
2 Credits
Companion course to Practicum II. Further development of observation skills and techniques will be explored. An examination of positive guidance techniques to meet individual and group needs is presented.
CHD 205 - CHILDREN'S LITERATURE AND LANGUAGE ARTS
3 Credits
Provides for understanding of the development and acquisition of language in order to provide materials and activities for optimum growth. Students will explore and evaluate literature for young children. Introduces audio-visual material, methods, techniques, and various types of equipment which are utilized in early childhood programs.
CHD 206 - EARLY CHILDHOOD ADMINISTRATION
3 Credits
Introduces principles of managing a child care facility. Emphasizes the role of the manager and includes personnel, program administration and fiscal management. Client-community relations are explored.
CHD 207 - PRACTICUM III
3 Credits
Provides opportunity for practical experience through observation and supervised participation in child care settings.
CHD 208 - SEMINAR III
2 Credits
Companion course to Practicum III. The integration of skills is employed to develop a thematic teaching unit.
CHD 210 - INTRODUCTION TO IN-HOME CARE
4 Credits
Offers an overview of child care offered in a home-like setting. The course includes providing a safe, healthy learning environment in the home setting, parent-provider relationships, and recommendations for developing a professional support system.
CHD 211 - SCHOOL AGE PROGRAMMING
3 Credits
Examines materials, methods, and teaching styles for providing creative experiences for the school age child. Other experiences such as appropriate music, movement, art, and drama for use in school age child care settings. Reviews theories of adolescent growth and development.
CHD 212 - ADOLESCENT CHILD GROWTH AND DEVELOPMENT
3 Credits
A lecture/laboratory course studying the physical, social, emotional, and cognitive development of the child, 8-15 years.

CHD 213 - INFANT/TODDLER CARE PROGRAMMING
3 Credits
A lecture/laboratory course studying the physical, social, emotional, and cognitive development of the child 0-36 months.

CHD 215 - CHILD DEVELOPMENT ASSOCIATE PREPARATION
3 Credits
Course meets requirements of the Council for Early Childhood Professional Recognition for academic preparation for the Child Development Associate credential. Course will provide students with the theoretical knowledge to support competent performance in a child care setting.

HUMAN SERVICES TECHNOLOGY

The Human Services program offers students the opportunity to become Human Services Generalists or to concentrate in the areas of Substance Abuse, Gerontology or Criminal Justice.

As a Human Services professional, one reaches out to individuals, to families, and to communities. The Human Services program provides the broad understanding to help others meet their psychological, social, and environmental needs. The Human Services Generalist may find employment in a variety of settings.

Those who study Human Services with a focus on Substance Abuse may find positions in substance abuse centers (residential, detox, and hospitals) as counselors or residents-in-training. (The program is certified by Indiana Counselors Association on Alcohol and Drug Abuse, ICAADA.) Those who focus on Gerontology may find jobs in adult day care centers, senior citizens centers and extended care facilities. Those who focus on Criminal Justice may want to work in probation or parole but need to continue their education.

The Associate of Applied Science degree requires 64 credits.

Human Services Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(34 Credits)**
HST	101	Introduction to Human Services	3
HST	102	Helping Relationship Techniques	3
HST	103	Interviewing and Assessment	3
HST	201	Internship I	5
HST	202	Internship II	5
HST	203	Internship Seminar I	3
HST	204	Internship Seminar II	3
HST	205	Behavioral/Reality Techniques	3
HST	206	Group Process and Skills	3
HST	207	Program Planning/Policy	3

AAS/General Education Courses			**(18 Credits)**
ENG	101	English Composition	3
ENG	103	Speech	3
SOC	102	Introduction to Psychology	3
SOC	104	Introduction to Sociology	3
SOC	105	Introduction to Political Science	3
MAT	107	Math of Finance	3

AAS/Regional Courses

Generalist Track **(12 Credits)**

See the advisor for all possible course choices.

Substance Abuse			**(12 Credits)**
HST	113	Problems of Substance Abuse	3
HST	208	Treatment Models	3
HST	209	Counseling Issues in Substance Abuse	3
HST	210	Codependency	3
Gerontology			**(12 Credits)**
HST	106	Physiology of Aging	3
HST	108	Psychology of Aging	3
Plus Credits from the Generalist Track			
HST	105	Intro to Criminal Justice Systems	3
HST	107	Juvenile Deliquency	3
HST	107	Rehabilitation Processes: Probation and Parole	3
SOC	202	Abnormal Psychology	3

Total AAS Credits **64**

COURSE DESCRIPTIONS

HST 101 INTRODUCTION TO HUMAN SERVICES
3 Credits
Exploration of the history of human services, career opportunities and roles of the human service worker. Focuses on target populations and community agencies designed to meet the needs of various populations.

HST 102 - HELPING RELATIONSHIPS TECHNIQUES
3 Credits
Provides opportunities to increase effectiveness in helping people. Examines the helping process in terms of skills, helping stages, and issues involved in a helping relationship and introduces major theories of helping.

HST 103 - INTERVIEWING AND ASSESSMENT
3 Credits
Develops skills in interviewing and provides a base for students to build personal styles. Introduces a variety of treatment planning methods. Case studies and recording exercises are utilized.

HST 104 - CRISIS INTERVENTION
3 Credits
This course is designed as a beginning training unit for people who anticipate or are presently working in crisis situations.

HST 105 - CRIMINAL JUSTICE SYSTEMS
3 Credits
This course introduces the study of crime and criminals and how society is affected.

HST 106 - PHYSIOLOGY OF AGING
3 Credits
This course will focus on the physical and common pathologies associated with the aging process. It also will focus on the psychological and social implication of such changes for human behavior. Throughout the course, there will be a focus on health promotion and disease prevention during the later years.

HST 107 - HUMAN SERVICES TOPICAL SEMINAR
3 Credits
Discusses topics of interest in human services. Attention is given to special interest projects for students of Human Services. Field trips, guest speakers, audio-visual activities, and seminars may be utilized.

HST 108 - PSYCHOLOGY OF AGING
3 Credits
Covers the major behavioral changes in adulthood and aging. Students explore their own feelings about failing, as well as societal attitudes.

HST 109 - FAMILIES IN AMERICAN CULTURE
3 Credits
The impact of change on the role and function of the modern family, the nature of the socialization process, and socioeconomic, cultural and ethnic factors that nurture or inhibit the family's capacity to function are areas of study included in this course.

HST 111 - L.T.C. ACTIVITY DIRECTOR
3 Credits
Explores the philosophy and investigates the development of therapeutic activity programs for residents living in nursing homes. It focuses on offering activities which will meet an individual's physical, social, emotional needs.

HST 112 - RECREATION FOR SPECIAL POPULATIONS
3 Credits
Studies the nature and etiology of impairments including developmental disabilities, mental illness, physical disabilities and geriatrics, and their potential impact upon an individual's ability to participate in recreational activities. Techniques needed to conduct recreation which allows successful articulation by an individual with a disability will be explored.

HST 113 - PROBLEMS OF SUBSTANCE ABUSE IN SOCIETY
3 Credits
Provides basic information about alcohol and drugs, as well as the various laws which pertain to them. It also explores current attitudes and practices which pertain to alcohol and drug use, misuses, and dependence.

HST 114 - SOCIAL SERVICES IN LONG-TERM CARE
3 Credits
A specialized course which gives practical and useful information about aging and institutionalization. It focuses on the role of Social Services with the long-term care facility.

HST 115 - APPLIED BEHAVIORAL PSYCHOLOGY
3 Credits
A study of unique capacities and personal strengths of self and others. Emphasis is on discovering, clarifying, and affirming individual potential for living more fully. Students discuss the complex nature of human development, human behavior and related social problems.

HST 116 - INTRODUCTION TO MENTAL RETARDATION/DEVELOPMENT DISABILITIES
3 Credits
This course provides the participant with background knowledge of the field of mental retardation/developmental disabilities and issues pertinent to the field.

HST 117 - INTRODUCTION TO RESIDENTIAL TREATMENT
3 Credits
Introduces information, skills, and attitudes necessary to become an effective worker in residential treatment. Explores the therapeutic "milieu," basic developmental needs, planning and use of activities, and issues related to the team approach. Discusses and demonstrates observation and recording of behavior.

HST 201 - INTERNSHIP I
5 Credits
A field work experience in social, educational, law enforcement.

Certificate Option for Health Care Administration

- Licensing requirements for Long Term Care Administrator
- 5 required courses at Ivy Tech
- 6 month preceptorship under a licensed preceptor in long term care - on your own.
- State And National Licensing Exams

Note: This is a proposed NCFA rule pending to require a Baccalaureate Degree for long term care administrators. When or how the final rules will be written is not known.

Five required courses include:

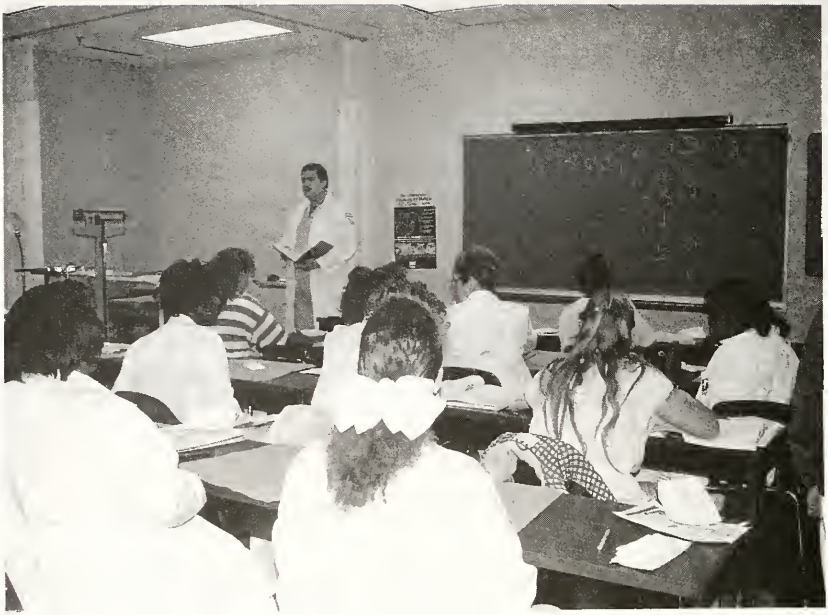
HST 118-01- INTRODUCTION TO LONG TERM CARE
3 Credits
Explores the history of health care provided outside the home and offers an overview of long-term health care facilities. Includes rules and regulations of nursing homes, resident rights, legislation, and physical plant requirements.

HST 121-26 - ISSUES OF LONG TERM CARE
3 Credits
(Formerly: Human Services Topical Seminar - 4065.) An overview of various issues to familiarize students with responsibilities of nursing home administrators. Management styles, models, quality circles and personal improvement are covered.

BUS 202-01 or BUS 202-51 - HUMAN RESOURCE MANAGEMENT
3 Credits
Overview of the activities of a human resource manager with emphasis on employer-employee relations, job analysis and evaluation, salary administration, work measurement and standards, performance appraisal, and legal compliance.

HST 119-01- INTERDISCIPLINARY TEAM
3 Credits
This course explores the reasons which support the need to work as an interdisciplinary team. The various departments and services the department provides will be addressed.

HST 201-26- HEALTH AND AGING
3 Credits
This course looks at the holistic view of the physical, psychological, and social needs of those living in extended care facilities. The normal elder will be emphasized.



MEDICAL ASSISTANT

The graduate of the Medical Assistant Program is a professional multi-skilled health care provider dedicated to assisting in patient care management in ambulatory care settings. The practitioner performs administrative and clinical duties and may manage emergency situations, facilities, and/or personnel. Competence in the field also requires that a Medical Assistant display professionalism, communicate effectively, and provide instruction to patients. A required externship provides valuable on-the-job experience.

The program is accredited by the American Association of Medical Assistants and the Committee on Allied Health Education of the American Medical Association.

Graduates of the Medical Assistant Program will be prepared to take the Certification Examination of the American Association of Medical Assistants (AAMA) and the American Medical Association (AMA) to obtain CMA status that is recognized nationally.

The two-year Associate of Applied Science program requires 65 credits for completion. The Technical Certificate requires 45 credits and can be completed in one calendar year.

Salary range for Medical Assistants is from $6.00 to $13.00 per hour

depending upon education, experience, and specialty area.

The Medical Assistant Program works in cooperation with private physicians' offices, health maintenance organizations, and Immediate Care Centers to provide clinical and administrative experiences for students.

A one-year part-time limited radiology curriculum is available to medical assistant graduates leading to an opportunity to sit for the IDH Limited General Certificate Examination in radiography.

Passing this exam qualifies the Limited General Technologist to perform general radiography in non-hospital settings. The salary range is $8.50 to $11.50 per hour.

Note: Evening classes are available. All but 4-5 classes can be done in the evening.

Medical Assistant
Associate of Applied Science Degree

AAS/Technical Core Courses			**(37 Credits)**
***Technical Certificate**			**(26 Credits)**
*MEA	102	First Aid and CPR	2
*MEA	104	Medical Assisting - Administrative	3
*MEA	111	Medical Typing and Transcription	3
*MEA	112	Medical Assisting - Clinical	4
*MEA	113	Pharmacology	3
*MEA	114	Medical Assisting Laboratory Techniques	3
*MEA	115	Medical Insurance	2
*MEA	120	Medical Assisting - Clinical Externship	3
*MEA	121	Medical Assisting - Administrative Externship	3
MEA	201	Medical Word Processing - Transcription	2
MEA	202	Medical Assisting - Advanced Clinical	4
MEA	203	Disease Conditions	3
MEA	204	Medical Office Management	2

AAS/General Education Requirements			**(18 Credits)**
***Technical Certificate**			**(12 Credits)**
*ENG	101	English Composition	3
ENG	103	Speech	3
MAT	107	Math of Finance	3
*SOC	102	Introduction to Psychology	3
*SCI	113	Anatomy and Physiology I	3
*SCI	115	Anatomy and Physiology II	3

AAS/Regional Courses			**(7 Credits)**
***Technical Certificate**			**(7 Credits)**
*INF	101	Introduction to Microcomputers	3
*MEA	101	Medical Terminology	3
*MEA	103	Medical Law and Ethics	1

AAS/Regional Electives **(3 Credits)**
Select one of the following: MEA 213, MEA 212, MEA 211, MEA288(s) or approved courses in the Health or Business Division.

Total AAS Credits	**65**
***Total Technical Certificate Credits**	**45**

COURSE DESCRIPTIONS

MEA 101 - MEDICAL TERMINOLOGY
3 Credits
Addresses basic terminology required of the allied health professional. Greek and Latin prefixes are presented, as well as suffixes, word roots, and combining forms. Emphasis is on forming a solid foundation for a medical vocabulary including meaning, spelling, and pronunciation. Medical abbreviations, signs, and symbols are included.

MEA 102 - FIRST AID AND CPR
2 Credits
Provides students with information necessary to recognize emergency situations, know the proper course of action with different types of emergencies, and apply appropriate first aid, including CPR.

MEA 103 - MEDICAL LAW AND ETHICS
1 Credit
Presents ethics of medicine and medical practice, as well as legal requirements and implications for allied health professions.

MEA 104 - MEDICAL ASSISTING - ADMINISTRATIVE
3 Credits
This course provides a basic understanding of the administrative duties and responsibilities pertinent to medical offices. It also develops communication skills specifically directed toward a medical office and the role of the professional Medical Assistant as a member of the health care team. It includes instruction in medical correspondence and records, case histories of patients, filing, financial administration, telephone procedures, appointment scheduling, receptionist duties, processing mail, pegboard accounting, and care of facilities and equipment. It also includes development of desirable personality traits, interpersonal relationships and attitudes within the medical office.

MEA 111 - MEDICAL TYPING AND TRANSCRIPTION
3 Credits
Focuses on improving typewriting ability in the medical field, including transcription with emphasis on production, speed and accuracy. Course includes formatting, typing, and transcription of articles, medical reports, case histories, and correspondence using medical terminology.

MEA 112 - MEDICAL ASSISTING - CLINICAL
4 Credits
Provides students the opportunity to become familiar with clinical duties and to gain the skills needed to perform them. Includes: vital signs, asepsis, sterilization, medications, EKGs, X-ray, nutrition, physical therapy and other technical skills needed to assist the physician.

MEA 113 - PHARMACOLOGY
3 Credits
The most common medications in current use are discussed according to body systems with emphasis on classifications, uses, routes of administration, dosages, interactions, incompatibilities, and side effects. Also addressed are special precautions, legal aspects, and patient education.

MEA 114 - MEDICAL ASSISTING LABORATORY TECHNIQUES
3 Credits
Prepares students to perform various basic laboratory procedures to include preparation of patients, collecting and preparing specimens, familiarization with purposes and expected norms of laboratory test results. Course also includes current safety and quality control standards.

MEA 115 - MEDICAL INSURANCE
2 Credits
An overview of medical insurance problems with skills developed in handling insurance forms, CPT and ICD-9-CM Coding, and reports as applied to the medical office.

MEA 120 - MEDICAL ASSISTING - CLINICAL EXTERNSHIP
3 Credits
Provides the opportunity to discuss and perform clinical procedures under supervision, with learning experiences obtained in selected physicians' offices, clinics, or hospitals.

MEA 121 - MEDICAL ASSISTING - ADMINISTRATIVE EXTERNSHIP
3 Credits
Course provides opportunities to observe, perform, and discuss various administrative competencies under supervision, with learning experiences obtained in selected physicians' offices, clinics, or hospitals.

MEA 201 - MEDICAL WORD PROCESSING/TRANSCRIPTION
2 Credits
Advances skills and knowledge of medical dictation, machine transcription, and use of word processing. Includes typing medical reports, terminology, and correspondence.

MEA 202 - MEDICAL ASSISTING - ADVANCED CLINICAL
4 Credits
Advances the knowledge and skills enabling the student to assist in clinical management in the medical and surgical specialities. Addresses health services in the community which are directed toward prevention of disease and maintenance and restoration of health.

MEA 203 - DISEASE CONDITIONS
3 Credits
Presents the basic concepts of diseases, their courses and functional disturbances as they relate to body systems. Includes the precipitating risk factors and appropriate methods of patient education regarding various disease processes.

MEA 204 - MEDICAL OFFICE MANAGEMENT
2 Credits
An in-depth study of various influences on office functions providing a background for organization and management of a physician's office. Includes government and professional sources for consultation.

MEA 211 - ECG INTERPRETATION
3 Credits
Covers basic cardiovascular anatomy and physiology; basic electrophysiology; ECG techniques to define, identify and analyze ECG measurements; ECG holter and stress testing instrumentation; nomenclature and derivations of ECG leads.

MEA 212 - PHLEBOTOMY
3 Credits
Presents the principles and practices of laboratory specimen collection and processing. Also covers medical terminology, infection control, patient identification, anatomy and physiology, anticoagulants, blood collection, specimen processing, and interpersonal skills.

MEA 213 - ADVANCED INSURANCE CODING
3 Credits
Introduces the medical office administrator to codes necessary to bill insurance claims and provides experience in coding claim forms using the correct combination of codes to maximize reimbursement.

MEA 221 - SEMINAR I
1 Credit
Discusses topics of current interest in the medical assisting profession. Attention is given to special interest projects for students in the Medical Assistant program. Field trips, guest speakers, audio-visual activities, and seminars may be utilized.

MEA 222 - SEMINAR II
2 Credits
Discusses topics of current interest in the medical assisting profession. Attention is given to special interest projects for students in the Medical Assistant program. Field trips, guest speakers, audio-visual activities, and seminars may be utilized.

MEA 223 - SEMINAR III
3 Credits
Discusses topics of current interest in the medical assisting profession. Attention is given to special interest projects for students in the Medical Assistant program. Field trips, guest speakers, audio-visual activities, and seminars may be utilized.

MEA 288 - SPECIAL TOPICS IN MEDICAL ASSISTANT TECHNOLOGY
1-5 Credits
A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

MEA 299 - COMPREHENSIVE CERTIFICATION REVIEW
3 Credits
This course is designed to review fundamentals and principles of medical assisting, thereby preparing the student to sit for the certification examination upon graduation from the program. Administrative, clinical, and general information is covered. Testing procedures are addressed.

PRACTICAL NURSING

The Licensed Practical Nurse is an integral part of the health care team. The Practical Nursing program is a one-year course of study leading to a Technical Certificate. This accredited program prepares the individual to take the state licensure exam to become a Licensed Practical Nurse (LPN). The program is designed for students to gain knowledge and technical skills necessary to appropriately care for patients in a variety of health care settings, such as hospitals, convalescent centers, and physicians' offices. Students learn to administer medications and treatments commonly performed by Licensed Practical Nurses.

The Indianapolis program is accredited by the National League of Nursing (NLN) and approved by the Indiana State Board of Nursing. Clinical courses begin in the fall and spring semester of this twelve-month program that requires two semesters and a twelve-week summer session. The PSB Aptitude Test Practical Nursing is required after Skills Advancement courses (reading, writing, and math) are completed or almost completed. The fee for this test is $25.00. Applicants are advised to apply six to nine months in advance.

The following facilities have collaborated with the College as clinical sites for practical work experiences required in the program:

Community North, South and East in Indianapolis

Hancock Memorial Hospital, Greenfield

Riley Hospital

Regency Place - Greenwood

Marion County Home

Americana Healthcare North

Eagle Valley Manor

Churchman Manor

Cambridge Healthcare

Noblesville Healthcare

Pine Tree Healthcare

Carmel Care

Johnson Memorial Hospital, Franklin

Lifelines of Indianapolis

Major Hospital, Shelbyville

Methodist Hospital of Indiana

Midwest Medical Center

Wishard Memorial Hospital

St. Francis Hospital Center

St. Vincent's Hospital and Health Care Center

The starting salary is $10.00 to $13.00 per hour, which can increase up to 25% because of shift differentials and fringe benefits. Applicants should check with local medical facilities to get current salary information.

Practical Nursing
Technical Certificate

Technical Core Courses			**(50 Credits)**
PNU	101	Foundations of Nursing	4
PNU	102	Therapeutic Measures	3
PNU	103	Holistic Approach to Health	2
PNU	104	Nutrition	2
PNU	105	Introduction to Clinical Nursing	3
SCI	113	Anatomy and Physiology I	3
SCI	115	Anatomy and Physiology II	3
PNU	107	Cardiopulmonary Nursing	3
PNU	108	Endocrine/Genitourinary Nursing	3
PNU	109	Gastrointestinal/Sensorimotor Nursing	3
PNU	110	Introduction to Pharmacology for PN	2
PNU	111	Pharmacology for Practical Nurses	2
PNU	112	Medical/Surgical Clinical Nursing I	3
PNU	113	Medical/Surgical Clinical Nursing II	2
PNU	114	Nursing Issues and Trends	1
PNU	115	Gerontology	3
PNU	116	Geriatric Clinical Nursing	3
PNU	117	Maternal/Child Nursing	3
PNU	118	Maternal/Child Clinical Nursing	3

Total Technical Certificate Credits **50**

Suggested courses that help develop students for Program Required Courses:

BSA	007	Spelling	1
BSA	063	Introduction to Anatomy and Physiology	3
BSA	071	Critical Thinking	3
BSA	074	Introduction to Computer Literacy	1
MEA	101	Medical Terminology	3
MEA	212	Phlebotomy	3
MEA	288	Success Skills for Human Services and Health Technologies	3

COURSE DESCRIPTIONS

PNU 101 - FOUNDATIONS OF NURSING
4 Credits
The art and science of practical nursing: the goals and the role of the licensed practical nurse on the health care team. Concept of the nursing process as practiced within the wellness/illness continuum. Includes basic nursing care, collection and recording of data.

PNU 102 - THERAPEUTIC MEASURES
3 Credits
Focuses on the art and science required for the practical nurse to carry out preventative, therapeutic, and rehabilitative nursing interventions requiring advanced skills and knowledge. Integrates the nursing process and the role of the practical nurse.

PNU 103 - HOLISTIC APPROACH TO HEALTH
2 Credits
Orientation to the holistic approach to the art and science of practical nursing. Includes holistic aspects of care, the wellness/illness continuum, and therapeutic relationships.

PNU 104 - NUTRITION
2 Credits
Basic principles of nutrition and diet therapy in wellness and illness for various age groups. Considers socioeconomic, ethnic and religious factors related to diet. Emphasis on the role of the practical nurse in assisting patients in meeting nutrition needs.

PNU 105 - INTRODUCTION TO CLINICAL NURSING
3 Credits
Provides students with opportunities to implement basic nursing skills in the clinical setting . Emphasizes the hygienic and comfort needs of the adult patient and developing basic assessment skills utilizing the nursing process. Concise, accurate documentation of assessments and care delivery is stressed.

PNU 106 - ANATOMY AND PHYSIOLOGY FOR PN
5 Credits
Presents structure and function of the human body. Examines the physical and chemical factors enabling human beings to interact with and to maintain homeostasis of the internal environment. Fundamental wellness/illness relationships are integrated.

PNU 107 - CARDIOPULMONARY NURSING
3 Credits
Utilizes the nursing process in understanding the pathophysiology and nursing care of patients with cardiovascular/ventilation needs. Emphasizes developing nurse as a communicator and care giver with a holistic approach.

PNU 108 - ENDOCRINE/GENITOURINARY NURSING
3 Credits
Utilizes the nursing process in understanding the pathophysiology of hormonal imbalances and urinary elimination needs. Emphasis is on the nurse as a communicator and caregiver with a holistic approach; identifying community supports for patients; and developing patient awareness of healthful lifestyle.

PNU 109 - GASTROINTESTINAL/SENSORIMOTOR NURSING
3 Credits
Utilizes the nursing process in understanding the pathophysiology of digestion, elimination, mobility, and sensorimotor needs. Develops the nurse as a communicator and caregiver with a holistic approach. Relates patients' psychosocial needs and opportunities for support through community agencies.

PNU 110 - INTRODUCTION TO PHARMACOLOGY-PN
2 Credits
The art and science of meeting biopsychosocial needs through administration of pharmacologic agents within the preventative, therapeutic and rehabilitative environment. Defines LPN responsibilities in medication administration. Nursing process is used to assess patient wellness/illness status.

PNU 111 - PHARMACOLOGY FOR PRACTICAL NURSES
2 Credits
A survey of common pharmacological agents. Nursing process is the framework used to meet biopsychosocial needs of individuals along the wellness/illness continuum through the administration of pharmacologic agents. Drug therapy is developed as one aspect of preventative, therapeutic and rehabilitative care of patients in their environment.

PNU 112 - MEDICAL SURGICAL CLINICAL NURSING I
3 Credits
Correlates medical surgical content and nursing practice. Nursing process is used as the basis of decision making within the practical nurse role. Emphasis is on the holistic aspects of individuals along the wellness/illness continuum.

PNU 113 - MEDICAL SURGICAL CLINICAL NURSING II
2 Credits
Correlates medical surgical content with advanced nursing practice. Nursing process is implemented within the role of the practical nurse.

PNU 114 - NURSING ISSUES AND TRENDS
I Credit
Introduces organizational patterns and the role of Licensed Practical Nurses in the health care delivery systems. Emphasizes continuing education as a means to maintain competencies. Ethical, legal, and historical aspects included to develop awareness of privileges, obligations and responsibilities of the practical nurse.

PNU 115 - GERONTOLOGY
3 Credits
Focuses on the normal aging process along the wellness/illness continuum in later life. Trends in preventative, rehabilitative, and therapeutic care are surveyed.

PNU 116 - GERIATRIC CLINICAL NURSING
3 Credits
Correlates gerontologic content with holistic care of the older adult. Implements nursing process within the role of the practical nurse to prevent illness or to maintain, promote, and restore health.

PNU 117 - MATERNAL CHILD NURSING
3 Credits
Examines conditions and selected interventions based on the nursing process, in providing preventative, rehabilitative and therapeutic care for the mother and child. The role of the Licensed Practical Nurse is identified in providing holistic care within a dynamic environment.

PNU 118 - MATERNAL CHILD CLINICAL NURSING
3 Credits
Correlates maternal child content with holistic care of the mother and child. Emphasis is on the normal maternity cycle and normal growth and development of the child within the wellness/illness continuum.

PNU 288 - SPECIAL TOPICS IN PRACTICAL NURSING TECHNOLOGY
1-5 Credits
A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area.

RADIOLOGIC TECHNOLOGY

The radiologic technologist prepares patients for X-rays; positions them; determines the proper voltage, current and exposure time; and operates the equipment. Trained radiologic technologists are in demand in hospitals, medical laboratories, physicians' and dentists' offices and clinics, federal and state health agencies and certain educational institutions.

The program includes courses in the following areas -- radiologic technique, exposure, positioning, protection, radiation physics, radiation biology, and ethics. Clinical practice and supplemental instruction are provided in accredited hospitals. Upon completion of program requirements, graduates are eligible to take the American Registry Examination given by the American Registry of Radiologic Technologists.

During the last four academic periods, 93% of the program graduates passed the American Registry of Radiologic Technologist Examination on their first attempt.

Radiologic Technology is a full-time year round, two-year program. Students, once accepted, will be at their clinical site three days each week and in the classroom two days each week.

The clinical sites are Bloomington Hospital in Bloomington, Johnson

Memorial in Franklin, and Midwest Hospital in Indianapolis.

The starting salary for a Radiologic Technologist is $11 to $11.50 per hour. This rates does not include the fringe benefits that could increase the base pay as much as 25%.

The program is accredited by the Joint Review Committee on Education in Radiologic Technology.

Limited General Radiogrraphy Course Series

The Radiologic Technology Program faculty offers a one-year part-time series of courses or curriculum called Limited General Radiography. These courses were developed by faculty of the two-year Associate Degree program in Radioloigic Technology at the request of the Indiana Department of Health (IDH). This series of nine courses totaling 30 credits in Limited General Radiography is the only group of appropriate courses approved by the IDH in Indiana for individuals who work in non-hospital settings. These courses are open to Registered Nurses, Licensed Practical Nurses, Certified Medical Assistants and Medical Assistants who were trained on the job. Qualified individuals interested in this course series must be employed at a facility that is operating an IDH approved X-ray machine. The starting pay for students who successfully complete the course series ranges from $8.50 to $11.50 per hour.

Radiologic Technology
Associate of Applied Science Degree

AAS/Technical Core Courses			**(55 Credits)**
RAD	101	Orientation & Nursing in Radiologic Technology	3
RAD	102	Principles of Radiographic Exposure	4
RAD	103	Radiographic Positioning I	3
RAD	104	X-Ray Clinical Education I	4
RAD	105	Radiographic Positioning II	3
RAD	106	X-Ray Clinical Education II	3
RAD	107	Radiation Physics	3
RAD	108	Radiographic Quality Assurance	2
RAD	109	Imaging Techniques	2
RAD	201	Radiographic Positioning III	3
RAD	202	X-Ray Clinical Education III	6
RAD	203	X-Ray Clinical Education IV	6
RAD	204	X-Ray Clinical Education V	5
RAD	205	Pathology for Radiologic Technology	2
RAD	206	Radiobiology	3
RAD	299	General Exam Review	3

AAS/General Education Requirements			**(22 Credits)**
ENG	101	English Composition I	3
SOC	104	Introduction to Sociology	3
SCI	113	Anatomy and Physiology I	3
SCI	115	Anatomy and Physiology II	3
MEA	101	Medical Terminology	3
MEA	103	Medical Law and Ethics	1
MAT	101	College Algebra	3
CIS	101	Introduction to Microcomputers	3

Total AAS Credits			**77**

Regional Entry Requirements:			
SCI	107	Chemistry	3
RAD	288	Pharmacology	3

COURSE DESCRIPTIONS

RAD 101 - ORIENTATION AND NURSING PROCEDURES FOR X-RAY TECHNOLOGY
3 Credits
History and application of diagnostic X-ray from its discovery to modern procedures. Introduces principles, properties, and safe usages. Emphasizes patient, technologist, and physician safety, along with patient-technologist relationships, asepsis, isolation, and first aid. Introduction to abdomen and chest positioning.

RAD 102 - PRINCIPLES OF RADIOGRAPHIC EXPOSURES
4 Credits
Presents individual and group characteristics needed to produce the ideal radiograph. Knowledge of interchangeability of mAs, kVp, film/screen combinations, distance, and grids. Also factors and considerations needed for pediatric techniques, calibration, heat unit calculation and technique chart construction.

RAD 103 - RADIOGRAPHIC POSITIONING I
3 Credits
Correlates positioning, terminology, techniques and film evaluation with exams of the upper extremity, upper or lower gastrointestinal tract, and intravenous pyelogram examinations.

RAD 104 - X-RAY CLINICAL EDUCATION I
4 Credits
Implements Clinical Category 1 of the Competency Model. Includes laboratory demonstration, clinical practice and supervised clinical experience.

RAD 105 - RADIOGRAPHIC POSITIONING II
3 Credits
Correlates positioning terminology and techniques and film evaluation with exams of the lower extremity, additional contrast studies.

RAD 106 - X-RAY CLINICAL EDUCATION II
3 Credits
Category 2 of the Competency Laboratory Model, testing competency and proficiency of skills from Category 1 and 2. Includes supervised clinical experience.

RAD 107 - RADIATION PHYSICS
3 Credits
Introduces physics as utilized in the production of X-rays. Includes laws of physics pertaining to atomic structure, chemical properties and reactions, and electrical circuitry. Also covers equipment and methods of generation and measurement of electricity.

RAD 108 - RADIOGRAPHIC QUALITY ASSURANCE
2 Credits
Presents theories and practices pertaining to the establishment of department exposure standards. Includes equipment tests for reliability, problem solving, reject analysis, and cost containment. Hands-on experience in processor monitoring, record keeping and radiographic quality control tests.

RAD 109 - IMAGING TECHNIQUES
2 Credits
Theories, principles, and demonstrations of current imaging modalities, including the image intensifier, tomography, video and cine camera, serial changers, subtraction technique, polaroid, thermography, ultrasound, and xeroradiography.

MAT 101 - COLLEGE ALGEBRA
3 Credits
Basic instruction in technical mathematics for students in health occupations. Includes review of arithmetic, basic concepts of algebra, graphing, geometry, and logarithms.

RAD 201 - RADIOGRAPHIC POSITIONING III
3 Credits
Covers positioning terminology, techniques, and film evaluations of the cranium, vertebral column, mammography, and routine special radiographic procedures.

RAD 202 - X-RAY CLINICAL EDUCATION III
6 Credits
Introduces Category 3 of the Competency Model, proficiency testing over Category 1 and 2, skills and competency testing over Category 3. Includes supervised clinical experience and skill maintenance.

RAD 203 - X-RAY CLINICAL EDUCATION IV
6 Credits
Introduces Category 4 of the Competency Model in laboratory proficiency testing of skills learned in Category 1, 2, and 3, and competency in Category 4. Includes supervised clinical experience.

RAD 204 - X-RAY CLINICAL EDUCATION V
5 Credits
Includes final competency testing for students who have not completed X-ray Clinical Education 4. Continues maintenance over all categories. Includes supervised clinical experience.

RAD 205 - PATHOLOGY FOR RADIOLOGIC TECHNOLOGY
2 Credits
Examines basic concepts concerning disease, its causes, and the resulting changes as viewed radiographically. Emphasis is placed on needed technical changes to produce optimal radiographs from correlations to patient symptoms.

RAD 106 - RADIOBIOLOGY
3 Credits
Theory and principles of the effects of ionizing radiation upon living tissues. Includes a review of dosages, measurements, DNA structure and function, and cellular radiosensitivity.

RAD 288 - SPECIAL TOPICS IN RADIOLOGIC TECHNOLOGY
1-5 Credits
A Special Topics Course provides students with the opportunity to experience seminars, workshops, and other instructional activities on topics of interest that reinforce the concepts presented in their program area (Contact Chief Academic Officer for more information).

RAD 299 - GENERAL EXAMINATION REVIEW
3 Credits
Reviews content of program, emphasizing anatomy, physics, exposure principles, and positioning. Simulated Registry exams prepare the student for American Registry of Radiologic Technologist Examination.

RESPIRATORY CARE PRACTITIONER

A respiratory care practitioner is an allied health professional who works under the direction of physicians in the diagnosis, evaluation, treatment, education and care of patients with cardiopulmonary diseases or abnormalities.

A graduate of the Associate of Applied Science program will be eligible to sit for the Entry Level and Advanced Practitioner exams given by the National Board for Respiratory Care (NBRC). Successful exam candidates will be awarded the Registered Respiratory Therapist credential. A graduate of the entry-level program will be eligible to sit for the entry-level practitioner exam given by the NBRC. Successful exam candidates will be awarded the Certified Respiratory Therapy Technician credential. The program's pass rates for the national exam are far above the national averages.

The two-year Associate of Applied Science degree requires 81 credits for completion.

The Associate Degree program is offered on both a full and part-time track. Both tracks require set courses each semester for the duration of the program. Students are accepted into either the full-time program or the

part-time program. The full-time program is five semesters in length (18 credits each semester) and starts in the fall semester of each year. The part-time program is nine semesters in length (9 credit hours per semester) and starts in the spring semester each year. Students should contact program personnel for specific curriculum and admission information.

Facilities that have collaborated with the college in this program include: Bloomington Hospital, Community Hospital-East, I.U. Medical Center Hospital, Methodist Hospital, Riley Children's Hospital, St. Francis Hospital, St. Vincent Hospital, Veteran's Administration Hospital, Midwest Medical Center and Wishard Hospital.

The 1990 hourly salary range for graduates of this program is from $9.50 to $11.50 at the Associate Degree level.

Respiratory Care Practitioner
Associate of Applied Science Degree

AAS/Technical Core Courses			**(57 Credits)**
*RES	101	Respiratory Care Science I	3
*RES	102	Respiratory Care Science II	3
*RES	103	Respiratory Care Science III	3
*RES	104	Respiratory Care Science IV	3
RES	105	Biophysics for Respiratory Care	3
*RES	106	Clinical Medicine	3
*RES	107	Cardiopulmonary Physiology	3
*RES	108	Clinical Practicum I	3
*RES	109	Clinical Practicum II	3
*RES	110	Clinical Practicum III	3
*RES	111	Clinical Practicum IV	3
RES	201	Respiratory Care Science V	3
RES	202	Respiratory Care Science VI	3
RES	203	Pathophysiology and Monitoring	3
*RES	204	Clinical Practicum V	3
RES	205	Clinical Practicum VI	3
RES	206	Clinical Practicum VII	3
RES	299	Pharmacology	3

AAS/General Education Requirements			**(24 Credits)**
ENG	101	English Composition I	3
SOC	101	Human Relations	3
MAT	101	Algebra I	3
*SCI	107	Chemistry	3
*SCI	111	Microbiology	3
*SCI	113	Anatomy & Physiology I	3
*SCI	115	Anatomy & Physiology II	3
CIS	101	Introduction to Microcomputers	3
IST	102	Techniques of Supervision	3

Total AAS Credits **81**

*Required for entry level.

COURSE DESCRIPTIONS

RES 101 - RESPIRATORY CARE SCIENCE I
3 Credits
Includes condensed history of respiratory care: principles/practices of oxygen administration; equipment cleaning and sterilization techniques, and gas analyzers. Includes patient care needs, asepsis, body mechanics, physical assessment, isolation techniques, medical terminology and medical records.

RES 102 - RESPIRATORY CARE SCIENCE II
3 Credits
Includes principles and practices of oxygen administration: gas blenders; humidity and aerosol therapies; environmental therapy; introduction to manual resuscitators; and therapeutics of incentive spirometry. Includes selected aspects of ethical practice.

RES 103 - RESPIRATORY CARE SCIENCE III
3 Credits
Covers medicinal aerosol therapy and respiratory pharmacology, ultrasonic therapy, positive pressure breathing modalities, chest physiotherapy and pulmonary rehabilitation. Introduces basic pulmonary function-testing. Selected aspects of ethical and legal respiratory practice are presented.

RES 104 - RESPIRATORY CARE SCIENCE IV
3 Credits
Covers basic airway care, basic arterial blood gas analysis and interpretation and basic medical laboratory data. Concepts and techniques of critical respiratory care of adults and infants. Includes adult, pediatric, and neonatal mechanical ventilators and related monitoring equipment.

RES 105 - BIOPHYSICS FOR RESPIRATORY CARE
3 Credits
Basic principles of physics related to respiratory care. Emphasis is placed on principles of motion, work, energy, electricity and bioelectricity and properties of liquids and gases.

RES 106 - CLINICAL MEDICINE
3 Credits
Introduces etiology, symptomatology, diagnosis, therapeutics and prognosis of selected pulmonary diseases.

RES 107 - CARMOPULMONARY PHYSIOLOGY
3 Credits
Covers the cardiopulmonary system including ventilation, perfusion, and gas exchange. Introduces arterial blood gases, acid-base regulation and physiologic monitoring.

RES 108 - CLINICAL PRACTICUM I
3 Credits
Introduction to the hospital environment. Experiences in various hospitals with respiratory care departments, patient charts,

patient identification and communication.

RES 109 - CLINICAL PRACTICUM II

3 Credits

Provides supervised experience in oxygen therapy, incentive spirometry, humidity/aerosol therapy and charting. Continuing certification in CPR is required.

RES 110 - CLINICAL PRACTICUM III

3 Credits

Supervised experience in selected therapeutic modalities. Introduction to chest physiotherapy, medicinal aerosol therapy, intermittent positive pressure breathing and ultrasonic therapy. Continuing certification in CPR is required.

RES 111 - CLINICAL PRACTICUM IV

3 Credits

Additional supervised experience in selected therapeutic modalities. Introduction to basic cardiopulmonary testing and mechanical ventilation is included. Continuing certification in CPR is required.

RES 201 - RESPIRATORY CARE SCIENCE V

3 Credits

Includes in-depth approaches to the respiratory care management of critically ill neonatal, pediatric and adult patients. Special emphasis on techniques of patient evaluation, monitoring, transportation and management.

RES 202 - RESPIRATORY CARE SCIENCE VI

3 Credits

Covers advanced techniques of mechanical ventilation of neonatal, pediatric and adult patients. Includes advanced techniques of patient assessment.

RES 203 - PATHOPHYSIOLOGY AND MONITORING

3 Credits

Includes etiology, symptomatology, diagnosis, therapeutics and prognosis of disease conditions related to respiratory care including relationships of body systems. Covers various equipment, techniques of data collection, interpretation and evaluation of data used in monitoring the cardiopulmonary system.

RES 204 - CLINICAL PRACTICUM V

3 Credits

Provides additional supervised experience in selected therapeutic modalities. Includes advanced patient assessment, clinical experience in adult critical care, arterial blood gas analysis and airway care. Continuing certification in CPR is required.

RES 205 - CLINICAL PRACTICUM VI

3 Credits

Additional supervised experience in selected therapeutic modalities. Includes advanced clinical experience in adult, pediatric and neonatal critical care and experience in adult education. Continu-

ing certification in CPR is required.

RES 206 - CLINICAL PRACTICUM VII

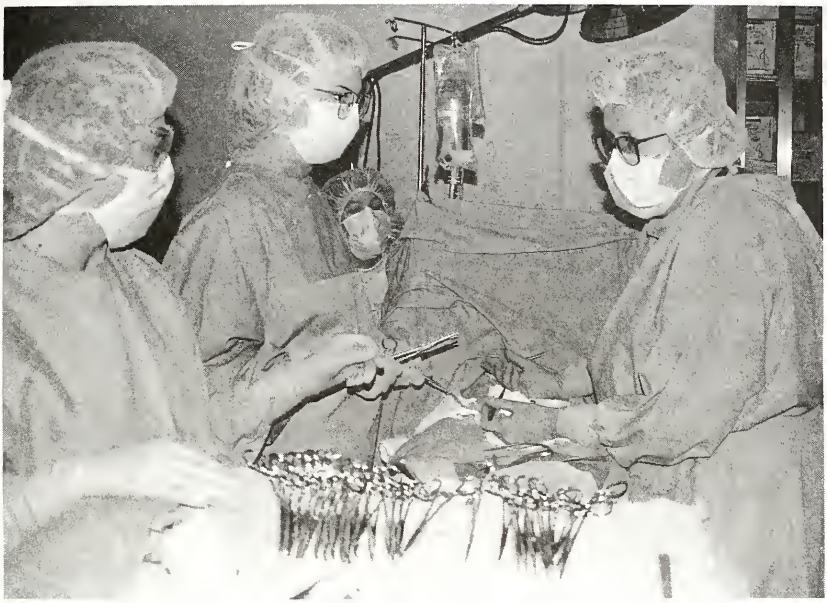
3 Credits

Includes additional supervised experience in selected therapeutic modalities. Includes advanced cardiopulmonary diagnostic techniques, application of invasive and non-invasive monitoring of the cardiopulmonary system, experience in respiratory care department management and quality assurance roles. Continuing certification in CPR is required.

RES 288 - SPECIAL TOPICS IN RESPIRATORY THERAPY TECHNOLOGY

1-5 Credits

Course content is based on the current matrix for the examinations.



SURGICAL TECHNOLOGY

The surgical technologist is a highly skilled member of the surgical team, qualified by didactic and clinical education to provide safe and efficient care to the patient in the operating room. The didactic education consists of courses in Anatomy and Physiology, Microbiology, Pharmacology, Medical Law and Ethics, Surgical Techniques and Surgical Procedures. Closely supervised clinical education is provided in local area hospitals.

The surgical technologist actively participates in surgery by performing scrub and/or circulating duties which include: passing instruments and supplies to the surgical team members, preparing and positioning the patient, operating equipment, assisting the anesthesiologist, and keeping accurate records. The program is one calendar year in length requiring 55 credits leading to a Technical Certificate.

The program is accredited by the Committee on Allied Health Education and Accreditation with the Joint Review Committee on Education for Surgical Technologists. The full-time program begins in the fall semester each year and includes the spring semester and a twelve-week summer session. Graduates receive a technical certificate.

The following facilities have collaborated with the College as clinical sites for practical work experiences required in the program.

Bloomington Hospital, Bloomington

Indiana University Hospital

Riley Hospital for Children

Community East Hospital

Wishard Memorial Hospital

Midwest Medical Center

St. Vincent's's Hospital and Health Care Center

The starting salary is $9.00 to $10.00 per hour, which can increase up to 25% because of shift differentials. Graduates are eligible to take the national certification exam.

Surgical Technology
Technical Certificate

Technical Core Courses			**(39 Credits)**
SUR	101	Surgical Techniques	3
SUR	102	Surgical Procedures I	3
SUR	103	Fundamentals of Surgical Technology	6
SUR	104	Surgical Procedures II	6
SUR	105	Clinical Applications I	9
SUR	106	Surgical Procedures III	3
SUR	107	Clinical Applications II	9

General Education Courses			**(16 Credit)**
SOC	101	Human Relations	3
SCI	111	Microbiology	3
SCI	113	Anatomy & Physiology I	3
SCI	115	Anatomy & Physiology II	3
MEA	103	Medical Law and Ethics	1
SUR	288	Pharmacology	3

Total Technical Certificate Credits **55**

Suggested courses that help develop students for Technical Courses. These courses are <u>not</u> required and they <u>do not</u> count toward the program.

BSA	007	Spelling	1
BSA	063	Introduction to Anatomy and Physiology	3
BSA	071	Critical Thinking	3
BSA	101	Introduction to Computer Literacy	1
MEA	101	Medical Terminology	3
MEA	288	Success Skills for Human Services and Health Technologies	3

COURSE DESCRIPTIONS

SUR 101 - SURGICAL TECHNIQUES
3 Credits
Introduction to principles of sterile technique and the operative care of the surgical patient. Includes the roles of scrubbing and circulating duties.

SUR 102 - SURGICAL PROCEDURES I
3 Credits
Orientation to the role of a surgical technologist. Introduction to the surgical facility, aseptic technique, and basic surgical procedures with review of total patient care including pre-operative care, diagnostic tests, and immediate post-operative care.

SUR 103-FUNDAMENTALS OF SURGICAL TECHNOLOGY
6 Credits
Demonstration and supervised practice of general surgical procedures. Students correlate theory to clinical by actively participating as members of surgical team. Includes laboratory and clinical components.

SUR 104 - SURGICAL PROCEDURES II
6 Credits
A study of advanced surgical procedure in relation to the total physiological aspects of surgical intervention. This includes a knowledge of the involved anatomy, existing pathology, surgical hazards encountered, the surgical procedure, and a review of total patient care.

SUR 105 - CLINICAL APPLICATIONS I
9 Credits
Correlates the basic principles and theories of the study of advanced surgical procedures to the clinical performance in affiliating hospitals. This includes the knowledge, skills and attitudes necessary for successful implementation of safe patient care in an operating room.

SUR 106 - SURGICAL PROCEDURES III
3 Credits
A study of specialized surgical procedures in relation to the total physiological aspect of surgical intervention. This includes a knowledge of the involved anatomy, existing surgical hazards encountered, the surgical procedures, and a review of total patient care.

SUR 107 - CLINICAL APPLICATIONS II
9 Credits
Correlates the principles and theories of specialized surgical procedures to the clinical performance in affiliating hospitals. This includes the knowledge, skills, and attitudes necessary for safe patient care in an operating room.

GENERAL EDUCATION AND SUPPORT SERVICES

The General Education and Support Services Division, through a strong General Education Program, stimulates the full intellectual, emotional, and social development of each student. General education undergirds, broadens, and augments the college's technical curriculum. Recognizing its essential value, all associate degree programs require a minimum of 25% of degree credits in general education. The division also provides a comprehensive skills advancement program, known as ACCESS, which develops basic skills, attitudes and learning processes to assure success in college programs. Additionally, the division provides an integrated system of academic and counseling support services as well as a Learning Resource Center with library and audio-visual services.

GENERAL EDUCATION

An associate degree must prepare students to enter the work force and to become full participants in the complex, rapidly evolving multiple environments of American society. The General Education Program provides instruction in mathematics, physical science, communication, and social science, as well as a learning support system of counseling and tutoring, and additional support services.

Mathematics and Science

Mathematics is an essential skill in meeting the ever-changing needs of our increasingly complex society.

The study of science leads to an understanding of the basic principles of the physical and life processes in our natural world.

The mathematics and sciences program provides program-level mathematics and science courses, including Algebra, Geometry/Trigonometry, Essential Mathematics, Algebra/Trigonometry, Calculus, Math of Finance, Statistics, Finite Math, Physical Science, Physics, Chemistry, Biology, Microbiology and Anatomy and Physiology.

Communication and Social Sciences

Recognizing that language is the foundation for all learning, the communications program encourages the use of language as a creative tool to develop and organize an understanding of self and others. Individuals develop proficiency in process-oriented composition, oral presentation, and professional writing.

The study of social science explores the commonality and diversity of human experience in a pluralistic society.

Courses are offered in composition, speech writing, and professional writing as well as human relations, psychology, sociology, political science and economics.

Library/Learning Resource Center

The Library/Learning Resource Center is a source of reference materials, leisure reading, materials related to all program areas of the College, career exploration materials, general magazines and newspapers, audio-visual software and equipment, inter-library loans, textbooks on reserve, reference service, library use assistance, and pay photocopying. Hours are Monday through Thursday, 8:00 a.m. to 9:00 p.m. and Friday, 8:00 a.m. to 5:00 p.m.

SKILLS ADVANCEMENT - ACCESS PROGRAM

Developing basic skills, attitudes and learning processes in order that students may enter and be successful in college programs, the ACCESS program is a comprehensive system of services including initial assessment of skills, specialized counseling services, ongoing course placement and classroom and lab instruction in basic mathematics, language, study skills, and critical thinking. Additional learning assistance is provided through small-group and one-on-one tutoring and computer-assisted instruction. The ACCESS program also provides comprehensive services for special needs students and English As A Second Language courses for non-native speakers of English.

ACADEMIC SUPPORT SERVICES

Expert one-on-one tutoring for any course offered by ACCESS or General Education is available in the Tutoring Center in room 258. The hours are Monday through Thursday 8:00 a.m. to 8:30 p.m., Friday 8:00 a.m. to 12 noon.

The Computer-Assisted Instruction (CAI) Lab and Interactive Video Disk (IVI) Lab are two microcomputer labs that help students learn concepts and provide students with adequate drill and practice sessions in such areas as the following: reading, writing, grammar, mathematics and science skills, English as a Second Language and study skills. Also available are GED, technical vocabulary for the deaf, word processing and a wide range of application software. Hours are Monday through Thursday, 8:15 a.m. to 8:30 p.m., and Friday, 8:15 a.m. to 12:00 and 1:00 to 3:00 p.m., and Saturday, 8:15 a.m. to 4:00 p.m.

SPECIAL SERVICES

Testing for course placement and admission to Ivy Tech programs is provided weekly. Included in this session are assessments of reading, writing and mathematics ability. Students who wish to receive credit by testing out of a course should contact the Testing Center for procedures.

Counseling services through the ACCESS program include academic counseling, career assessment and counseling, financial aid counseling and personal development counseling. These services are available to students who need supplemental support in order to succeed in their coursework.

The Special Needs Program at Ivy Tech is available to serve any student with a documented disability that may emerge as a barrier to the successful completion of coursework. Academic support and counseling services are provided specifically for students with special needs to enhance their independence and career preparation.

GENERAL EDUCATION COURSES

Prefix	No.	Title	Credits
Communications			
ENG	101	English Composition I	3
ENG	102	English Composition II	3
ENG	103	Speech	3
ENG	201	Technical Writing	3
Social Sciences			
SOC	101	Human Relations	3
SOC	102	Introduction to Psychology	3
SOC	103	Intercultural Relations	3
SOC	104	Introduction to Sociology	3
SOC	105	Introduction to Political Science	3
SOC	106	Principles of Macroeconomics	3
SOC	107	Principles of Microeconomics	3
Mathematics			
MAT	100	Essential Mathematics	4
MAT	101	Algebra I	3
MAT	102	Algebra II	3
MAT	103	Geometry/Trigonometry	3
MAT	104	Algebra/Trigonometry I	3
MAT	105	Algebra/Trigonometry II	3
MAT	106	Calculus	3
MAT	107	Math of Finance	3
MAT	108	Statistics	3
MAT	109	Finite Math	3
Humanities			
HUM	101	Survey of Humanities	3
HUM	102	Ethics	3
HUM	103	Art Appreciation	3
HUM	104	Music	3
Life and Physical Sciences			
SCI	101	Physical Science	3
SCI	102	Physical Science Lab	1
SCI	103	Physics I	3
SCI	104	Physics Lab I	1
SCI	105	Physics II	3
SCI	106	Physics Lab II	1
SCI	107	Chemistry	3
SCI	108	Chemistry Lab I	3

SCI	109	Biology	3
SCI	110	Biology Lab	1
SCI	111	Microbiology	3
SCI	112	Microbiology Lab	1
SCI	113	Anatomy & Physiology I	3
SCI	114	Anatomy & Physiology Lab I	1
SCI	115	Anatomy & Physiology II	3
SCI	116	Anatomy & Physiology Lab II	1
SCI	203	Advanced Physics	3

GENERAL EDUCATION COURSE DESCRIPTIONS

COMMUNICATIONS

ENG 101 - ENGLISH COMPOSITION I
3 Credits
Emphasizes competence in organizing and expressing ideas in writing. Instruction focuses on the writing process, and strategies for writing narrative, expository and argumentative prose. Research techniques introduced.

ENG 102 - ENGLISH COMPOSITION II
3 Credits
Builds on the writing skills taught in English 101 and emphasizes on-the-job writing situations. Writing assignments include memos, letters, resumes, and formal reports.

ENG 103 - SPEECH
3 Credits
Introduces fundamental concepts of speech and their application for effective public speaking. Focuses on developing and organizing speech content in informational and persuasive modes. Includes instruction in and evaluation of language and delivery skills, as well as speech content and organization, in a minimum of five class presentations.

ENG 201 - TECHNICAL WRITING
3 Credits
Builds on the writing skills taught in English 101. Students will demonstrate their ability to prepare a technical report using standard research techniques and will demonstrate both written and oral competencies.

SOCIAL SCIENCES

SOC 101 - HUMAN RELATIONS
3 Credits
Surveys human behavior and interaction in the work environment. Teaches students about themselves and others in order to help them function effectively.

SOC 102 - INTRODUCTION TO PSYCHOLOGY
3 Credits
Provides a general survey of the field of psychology. Includes study of learning, motivation, perception, psychological disorders, therapy, and research methods.

SOC 103 - INTERCULTURAL RELATIONS
3 Credits
Examines the cultural values and ethics of different cultures prevalent in the United States.

SOC 104 - INTRODUCTION TO SOCIOLOGY
3 Credits
Introduces the student to the science of human society, including fundamental concepts, descriptions, and analysis of society, such as culture, the socialization process, social institutions, and social change.

SOC 105 - INTRODUCTION TO POLITICAL SCIENCE
3 Credits
Presents the basic principles, theories and major factors that influence decision-making within the political process. Studies contemporary issues of national and world politics.

SOC 106 - PRINCIPLES OF MACROECONOMICS
3 Credits
Provides an overview of macroeconomic issues -- the determination output, employment, unemployment, interest rates, and inflation. Discusses monetary and fiscal policies, as well as public and international economic issues. Introduces basic models of macroeconomics and illustrates principles based upon the experience of the U.S. and foreign economics.

SOC 107 - PRINCIPLES OF MICROECONOMICS
3 Credits
Introduces the nature and method of economics, the price system, and capitalism. Covers demand, supply, and elasticity, the costs of production, and how these costs are determined. Concludes with an examination of how factors of production are determined under perfect competition in monopolistic competition, and digopoly.

SOC 201 - ABNORMAL PSYCHOLOGY
3 Credits
Presents history of ideas about and attitudes toward mental illness. Includes description of various disorders and character problems. Examines theories and research related to mental illness, as well as etiology, pathology and treatment methods.

MATHEMATICS

MAT 100 - CONTEMPORARY MATHEMATICS
4 Credits
Studies and connects mathematical concepts of numeration, algebra, geometry, trigonometry, probability and statistics through a problem-solving and modeling approach in order to recognize, validate and communicate these concepts.

MAT 101 - ALGEBRA I
3 Credits
Presents an in-depth study of the fundamental concepts and operations of algebra. Introduces algebra through linear equations in one unknown. Includes functions, graphing, powers of ten, scientific notation, rational expressions, the metric system and elements of right triangle trigonometry.

MAT 102 - ALGEBRA II
3 Credits
Provides further study in algebra with emphasis on systems of equations. Includes fractional and quadratic equations, factoring and logarithms. Includes additional topics in trigonometry such as oblique triangles, vectors, reactors and graphing.

MAT 103 - GEOMETRY/TRIGONOMETRY
3 Credits
Covers geometric topics including fundamentals of geometry, polygons, solid geometry, properties of circles, constructions, right triangles and trigonometric ratios and laws as they apply to right and oblique triangles, and graphing of trigonometric functions.

MAT 104 - ALGEBRA/TRIGONOMETRY I
3 Credits
Provides study in algebra including factoring, algebraic fractions, graphing of functions, polar coordinate systems plus right triangle trigonometry.

MAT 105 - ALGEBRA/TRIGONOMETRY II
3 Credits
Continuation of Algebra/Trigonometry 1 with emphasis on oblique triangles, graphs of trigonometric functions, radicals, complex numbers, exponential and logarithmic functions, inequalities, variation and trigonometric identities.

MAT 106 - CALCULUS
3 Credits
Presents an overview of analytical geometry and calculus including conic sections, limits, basic derivation and integration.

MAT 107 - MATH OF FINANCE
3 Credits
Covers percents, ratios, integers, equations, interest, consumer credit, payroll and taxes, markup and markdown, discounts, inventory and depreciation, and financial statements.

MAT 108 - STATISTICS
3 Credits
Study of the collection, interpretation and presentation of descriptive and inferential statistics. Includes measures of central tendency, probability, binomial and normal distributions, hypothesis testing of one and two sample populations, confidence intervals, chi-square testing, and correlation.

MAT 109 - FINITE MATH
3 Credits
Review of algebraic expressions and equations, inequalities, metrics, linear programming, conversion between number bases, set notation, properties and operations of set theory. Introduces logic, Boolean algebra, and probability.

HUMANITIES

HUM 101 - SURVEY OF HUMANITIES
3 Credits
Familiarizes students with the interrelated disciplines within the humanities: literature, fine arts, history, music, architecture, and philosophy.

HUM 102 - ETHICS
3 Credits
A study of ethical language, methods of justifying ethical decisions and types of ethical value systems, with emphasis on practical applications in terms of personal and social morality.

HUM 103 - ART APPRECIATION
3 Credits
A broad survey of the world's art, from prehistoric to contemporary. Emphasis is on an appreciation of art through understanding its purposes and origins.

HUM 104 - MUSIC APPRECIATION
3 Credits
A non-technical course designed to familiarize the student with the forms of music. Covers instruments of the orchestra, the style characteristics of major composers, commonly used musical terms and pertinent information about composers, performers,

and conductors. Directed listening assignments and readings are required.

LIFE AND PHYSICAL SCIENCES

SCI 101 - PHYSICAL SCIENCE
3 Credits
An introduction to physical concepts and theories demonstrating knowledge of current applications and developing trends in the fields of physics, chemistry, earth science and astronomy.

SCI 102 - PHYSICAL SCIENCE LAB
1 Credit
Provides for applications in experimentation and analysis in the physical sciences.

SCI 103 - PHYSICS II
3 Credits
A practical approach to the basic physics of force, work, rate, momentum, resistance, potential and kinetic energy, and power. Applications of these concepts to the four energy systems - mechanical, fluid, electrical and thermal.

SCI 104 - PHYSICS LAB II
1 Credit
Applications in experimentation and analysis in Physics I.

SCI 105 - PHYSICS II
3 Credits
A continuation of Physics I presenting the concepts of force transformers, energy converters, transducers, vibrations and waves, radiation, optics and optical systems.

SCI 106 - PHYSICS LAB II
1 Credit
Applications in experimentation and analysis for Physics 2.

SCI 107 - CHEMISTRY
3 Credits
An introductory study of chemical operations. Includes atomic structure, chemical bonding, oxidation-reduction, properties of matter, solutions, chemical equilibrium, acids, bases, salts, pH and concentrations.

SCI 108 - CHEMISTRY LAB
1 Credit
Applications in experimentation and analysis for Chemistry.

SCI 109 - BIOLOGY
3 Credits
Introduction to basic concepts of life forms, structures of plants and animals, human body systems, genetics, ecology and behavior. Surveys contemporary issues with regard to human interaction with the natural environment.

SCI 110 - BIOLOGY LAB
1 Credit
Applications in experimentation and analysis in Biology.
SCI 111 - MICROBIOLOGY
3 Credits
Applications of science to the problems of sterilization, growth and conditions of survival of microorganisms, infection, immunity, residence and isolation techniques.
SCI 112 - MICROBIOLOGY LAB
1 Credit
Applications in experimentation and analysis for Microbiology.
SCI 113 - ANATOMY AND PHYSIOLOGY
3 Credits
Study of the human body as a holistic, integrated unit, providing an introduction to both medical and directional terms, the cellular, tissue and organ structures and functions of several body systems.
SCI 114 - ANATOMY AND PHYSIOLOGY LAB I
3 Credits
Applications in experimentation and analysis in Anatomy and Physiology.
SCI 115 - ANATOMY AND PHYSIOLOGY II
3 Credits
A continuation of the study of the human body, completing all the body systems.
SCI 116 - ANATOMY AND PHYSIOLOGY LAB II
3 Credits
Applications in experimentation and analysis in Anatomy and Physiology.

SKILLS ADVANCEMENT

BSA	007	Spelling	1
BSA	024	Introduction to English I	3
BSA	025	Introduction to English II	3
BSA	028	Vocabulary Building	2
BSA	031	Reading I	3
BSA	032	Reading II	3
BSA	041	Mathematics I	1
BSA	042	Mathematics II	1
BSA	043	Mathematics III	1
BSA	045	Mathematics	3
BSA	051	Introduction to College Algebra	3
BSA	052	Introduction to College Trigonometry	3

BSA	053	Introduction to College Geometry	3
BSA	060	Introduction to Physics	2
BSA	061	Introduction to Chemistry	2
BSA	062	Introduction to Microbiology	2
BSA	063	Introduction to Anatomy/ Physiology	2
BSA	070	College Study Principles	3
BSA	071	Critical Thinking	3
BSA	073	Introduction to Keyboarding	1
BSA	074	Introduction to Computer Literacy	1
BSA	090	GED Prep	2
BSA	091	GED Prep II	2
BSA	095	Principles of GED	3
BSA	288	Handwriting	1
BSA	288	Language Skills	3
BSA	288	Reading Skills	3
BSA	288	Math Skills	3
BSA	288	Success Skills for Business	3
BSA	001	ESL I	3
BSA	288	ESL Reading I	3
BSA	288	ESL Writing I	3
BSA	288	ESL Listening and Speaking I	3
BSA	288	ESL II	3
BSA	288	ESL Reading II	3
BSA	288	ESL Writing II	3
BSA	288	ESL Listening and Speaking II	3
BSA	288	ESL III	3
BSA	288	ESL Reading III	3
BSA	288	ESL Writing III	3
BSA	288	ESL Listening and Speaking III	3
BSA	002	ESL IV	3
BSA	288	ESL Reading IV	3
BSA	288	ESL Writing IV	3
BSA	288	ESL Listening and Speaking IV	3

BASIC SKILLS ADVANCEMENT COURSE DESCRIPTIONS

BSA 007 - SPELLING
1 Credit
Develops spelling skills by thorough practice in spelling with attention to rules and exceptions.

BSA 024 - INTRODUCTION TO ENGLISH I
3 Credits
Introduces the student to a process approach to writing with emphasis on student generated topics and multiple drafting.
BSA 025 - INTRODUCTION TO ENGLISH II
3 Credits
Furthers skills gained in BSA 024 with emphasis on preparing students for English 101 by helping students expand their control of the writing process.
BSA 028 - VOCABULARY BUILDING
2 Credits
Concentrates on developing general English vocabulary, as well as vocabulary of a chosen technology. Dictionary skills and context skills are included.
BSA 031 - READING I
3 Credits
Emphasizes comprehension, vocabulary, and word attack skills beginning at a basic level.
BSA 032 - READING II
3 Credits
Advances skills acquired in BSA 031 - comprehension, vocabulary, and word attack and further prepares students for program-level courses.
BSA 041 - MATHEMATICS I
1 Credit
Develops the basic computational skills of whole numbers and fractions.
BSA 042 - MATHEMATICS II
1 Credit
Reviews basic computational skills of fractions and develops computation skills in decimals.
BSA 043 - MATHEMATICS III
1 Credit
Reviews basic computational skills in percents, ratio and proportion and measurement.
BSA 045 - MATHEMATICS
3 Credits
Reviews instruction in basic computational skills and their applications.
BSA 051 - INTRODUCTION TO COLLEGE ALGEBRA
3 Credits
Concentrates on basic algebra skills in preparation for college algebra.
BSA 052 - INTRODUCTION TO COLLEGE TRIGONOMETRY
3 Credits
Develops basic trigonometry skills to prepare the student for further study in trigonometry.

BSA 053 - INTRODUCTION TO COLLEGE GEOMETRY
3 Credits
Develops basic geometry skills to prepare the student for further study in geometry.
BSA 060 - INTRODUCTION TO PHYSICS
2 Credits
Provides basic instruction for physical concepts and technical vocabulary.
BSA 061 - INTRODUCTION TO CHEMISTRY
2 Credits
Introduces basic principles of chemistry and technical vocabulary.
BSA 062 - INTRODUCTION TO MICROBIOLOGY
2 Credits
Develops a basic understanding of microbiology concepts and technical vocabulary.
BSA 063 - INTRODUCTION TO ANATOMY/PHYSIOLOGY
2 Credits
Studies the basics of the human body as an integrated unit.
BSA 070 - COLLEGE STUDY PRINCIPLES
3 Credits
Orients and motivates students for success in college. Develops the skills of textbook-reading, note-taking, and test-taking.
BSA 071 - CRITICAL THINKING
3 Credits
Develops critical thinking and problem-solving skills through the recognition of patterns, cause-and-effect relationships, and consideration of alternatives and priorities.
BSA 073 - INTRODUCTION TO KEYBOARDING
1 Credit
Deals with basic keyboarding skills applicable to a typewriter or computer.
BSA 074 - INTRODUCTION TO COMPUTER LITERACY
1 Credit
Introduces basic computer literacy skills development.
BSA 090 - GED PREP
2 Credits
Presents in-depth preparation for the mathematics and science sections of the GED test.
BSA 091 - GED PREP II
2 Credits
Offers in-depth preparation for the social studies, reading, and writing sections of the GED test.
BSA 095 - PRINCIPLES OF GED
3 Credits
Reviews all subject areas on the GED test. Includes mathematics, science, social studies, reading, and writing sections.

BSA 288 - HANDWRITING
1 Credit
Focuses on individual diagnoses of penmanship faults, demonstration of handwriting techniques, and guided practice.
BSA 288 - LANGUAGE SKILLS
3 Credits
Strengthens the ability to identify and write complete sentences by emphasizing dictionary usage and word study.
BSA 288 - READING SKILLS
3 Credits
Introduces study skills in the areas of reading comprehension, vocabulary, and logical thinking skills.
BSA 288 - MATH SKILLS
3 Credits
Reviews whole numbers, fractions, and decimals.
BSA 001 - ESL I
3 Credits
Focuses on simple verb tenses, parts of speech, word order, capitalization, and punctuation. Designed for students whose first language is not English.
BSA 288 - ESL READING I
3 Credits
Emphasis on vocabulary building, word attack skills, reading comprehension. Designed for students whose first language is not English.
BSA 288 - ESL LISTENING/SPEAKING I
3 Credits
Focuses on how to make simple requests, ask for directions, request permission, ask what something means, speak intelligibly.
BSA 2888 - WRITING I
3 Credits
Focuses on writing simple sentences, controlled paragraphs, and expository paragraphs. Designed for students whose first language is not English.
BSA 288 - ESL II
3 Credits
Focuses on review of simple tenses. Introduces compound tenses, modals, clauses, and comparisons. Designed for students whose first language is not English.
BSA 288 - ESL READING II
3 Credits
Emphasis on vocabulary building and reading comprehension. Designed for students who first language is not English.

BSA 288 - ESL WRITING II
3 Credits
Emphasis on sentence combining, through phrases and clauses, to produce compound and complex sentences. Practice on unity and style in paragraph writing. Designed for students whose first language is not English.

BSA 288 - ESL LISTENING AND SPEAKING II
3 Credits
Emphasis on practical ideas and idiomatic speech as used in day-to day living. Designed for students whose first language is not English.

BSA 288 - ENGLISH AS A SECOND LANGUAGE III
3 Credits
Focuses on compound and complex sentence structure. Builds on and reviews basic grammatical skills. Designed for students whose first language is not English.

BSA 288 - ESL READING III
3 Credits
Emphasis on vocabulary building, word analysis skills, reading comprehension, and dictionary usage. Designed for students whose first language is not English.

BSA 288 - ESL WRITING III
3 Credits
Focus on writing short expository compositions of one to five paragraphs. Emphasis will be placed on clarity, organization, supporting details, unity and transition. Designed for students whose first language is not English.

BSA 288 - ESL LISTENING AND SPEAKING III
3 Credits
Learning to converse at a normal speed through paired and small group practice. Emphasis is on idioms and listening comprehension. Designed for students whose first language is not English.

BSA 288 - ESL IV
3 Credits
Emphasis on complex sentence structures, proper tense sequence, and logical thinking. Designed for students whose first language is not English.

BSA 288 - ESL READING IV
3 Credits
Focuses on improving all levels of reading proficiency, reading speed, comprehension, vocabulary, and general study skills. Designed of students whose first language is not English.

Full-Time Faculty

Division of Applied Science and Technologies

Duane Alfrey
Senior Instructor (Welding Technology). Certification: American Welding Society.

Huey Calvain
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Bryon Ewers
Instructor (Automtove Service Technology). Certified Master Technician

Ronald Finney
Instructor (Chairperson, Automotive Service Technology). B.S., Indiana University; ASE - Certified Master Technician; N.A.I.T. - Certified Industrial Technology.

William T. Flanigan
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Michael Hall
Instructor (Chairperson, Automated Manufacturing Technology). M.S., Purdue University; B.S., Purdue University; Licensed Professional Engineer.

Larry E. Hoskins
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Master Instructor (Department Chairperson, Technical Services). M.S., Indiana State University; B.S., Purdue University.

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Division of Business, Office and Information Systems Technologies

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